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2.1- MCD SYSTEM SERIES

2.1.1- WHAT IS MCD

The MCD (Digital Scroll Air Conditioner) air conditioning system is operated by a variable-capacity compressor and is accommodated by multiple evaporators (indoor units). It has undoubtedly changed the face of cooling associated with high-storied buildings.

It provides a broad range of different applications for settings such as offices, hotels and schools. With the advantage of easy installation and simple controlling system and so on, the MCD system can meet the demands of the air conditioning market better.

2.1.2- FEATURES OF MCD

(1) Variable compressor

The world's first PWM (Pulse Width Modulation) compressor controls the cooling and heating capacity automatically according to the load.

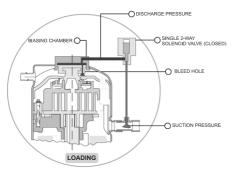
Principle of the digital scroll compressor:

[1] Composition

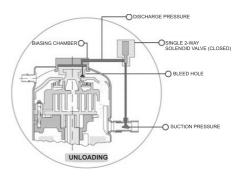
The solenoid valve is installed for the compressor's loading/ unloading between the upper part of the fixed scroll and the suction pipe.

[2] Mechanism

 a. When the solenoid valve is turned off, the fixed scroll is close to the orbiting (Loading).



 When the solenoid valve is turned on, the fixed scroll is separated from the orbiting scroll (Unloading).

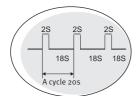


- c. This process controls the On / Off time of the valve and the rotating refrigerants in the circle thus adjusting the capacity.
- d. The cooling capacity of the outdoor units is adjusted automatically, according to the number of operating indoor unit(s).

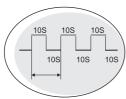
[3] PWM (Pulse Width Modulation) Valve

PWM valve is the valve to take away the fixed scroll by lifting up through the difference of pressure after the digital scroll compressor being connected to the outlet and inlet of suction.

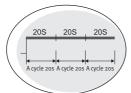
Therefore, the capacity of compressor is controlled automatically according to the operation status such as loading when the valve is closed or unloading when the valve is opened. PWM means the ON/OFF signal to the valve for loading /unloading.



10% Capacity output



50% Capacity output



100% Capacity output

Outdoor units

Model Refrigerant t	
6HP(Forward airflow, two fans)	R410A
10HP(Upward airflow, one fan)	R410A

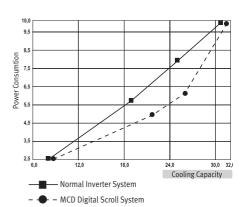
Indoor units

Туре	Model	Capacity (kW)	Refrigerant Type
Cassette	Four-way cassette type	2,8 3,6 5,6	R410A
Duct	Duct type	7,1 8,0	R410A
	Low static pressure duct type (Plastic body)	2,8 3,6	R410A
Wall-mounted type (G)		2,5 4,5 4,5	R410A

Remark: This capacity table shows different refrigerant and different indoor units that are available now, and the boldface number shows the R410A indoor units' capacity in above table.

(3) High efficiency

EER is up to 3.2.



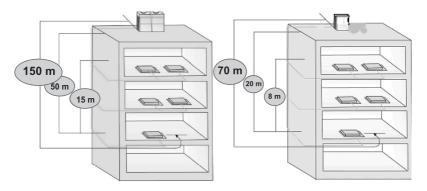


(4) Long & single piping system

Digital scroll system is the only system that is free of oil separator and oil recycling equipment. In the loading state, the speed of the refrigerant is enough to move oil back to the compressor.

For 28Kw system, the max. Pipe length between indoor unit and outdoor unit is 150m, the max. Height difference between indoor unit and outdoor unit is 50m, the max. Height difference between indoor units is 15m.

For 14kw system, the max. Pipe length between indoor unit and outdoor unit is 70m, the max. Height difference between indoor unit and outdoor unit is 20m, the max. Height difference between indoor units is 8m.



(5) Advanced oil return technology

Combining the electronic control and the mechanical control, the oil level controller keeps appropriate oil level in the compressor crankcase.

Equipped with oil balance pipe and low-pressure accumulator, it is applicable to both low-pressure & high-pressure oil cycling system.

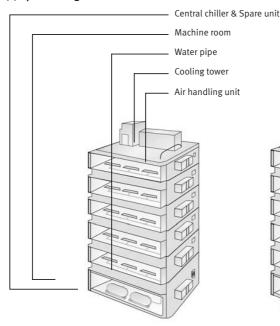
Besides, with the innovative design of one-way valve and capillary, the system can meet the continual oil level change of digital compressor and protect the compressor in whole hog.

The digital Scroll Compressor is in the state of loading or unloading. In the loading state, the full speed operation of the compressor motor ensures the refrigerant has enough power to bring the oil back to the compressor. In the unloading state, there is no oil moving out of since there is no refrigerant output, the inertia of the refrigerant can also bring some oil back to the compressor.

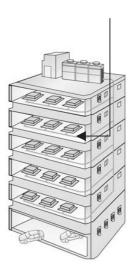
For 14kw system, the max. Pipe length between indoor unit and outdoor unit is 70m, the max. Height difference between indoor unit and outdoor unit is 20m, the max. Height difference between indoor units is 8m.



(6) Space saving



Only the refrigerant pipe



(7) Simple installation and easy maintenance

1. Easy installation

The structure of the MCD system and the piping work are simple, thus the installation is easy.

Indoorunitinstallation: flare nut connection, it is easy to connect and decrease your installation cost up to 30%.

- 2. Independent system
 - The MCD system can be installed by stages and the owners can install their system at their convenient time. Thus the system has less installation time limit.
 - Installation by stages can avoid the noninstallment for the new project.
 - Installation by stages can avoid the noninstallment for the new project.

3. No need special maintenance work
Simple refrigerant piping system without
any complicated maintenance work
compared with the water-cooled system
Without water-cooled system, there is no
need to clean the water pipe
No full-time person is needed to do the
maintenance work
Module construction enables the system to
be free from large-scale repair regularly

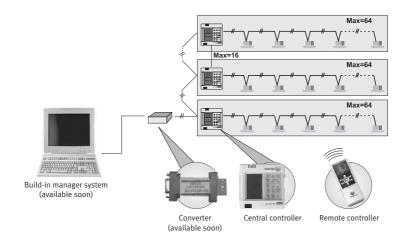
(8) Flexible control system

- Wireless remote control
- Wired remote control
- · Central control monitor
- Intelligent Net-work Air-conditioner control & monitor System (available soon)
- · Individual indoor unit control
- Realize group control of multi-indoor units (Max: 64 indoor units)
- Individual indoor unit control via PC monitoring system (Max: 16 CCM, 1024 indoor units), available soon

Intelligent manager is an integrated building management system that uses our independent, high-speed multi-transmission method. It has a centralized controller function that can perform high-speed centralized control of our commercial A/C for buildings.

MCD has various control solutions: Separate control, Group control, Network control, etc.

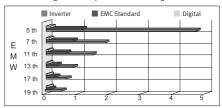
- 1 computer can monitor up to 16 central controllers.
- 1 central controller can monitor up to 64 indoor units.



(9) No electromagnetic disturbance

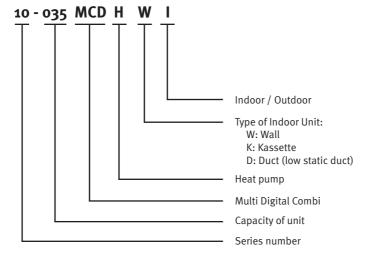
MCD Digital Scroll System causes no electromagnetic disturbance, since the loading and unloading of compressor are merely mechanical movement. This special feature makes the Digital Scroll System applicable to telecommunication companies, power stations, and all kinds of precise science labs.

Electromagenetic Comparison Between Digital & Inverter



2.2- MCD LINE-UP

2.2.1- NOMENCLATURE





2.2.2- COMBINATION

(1) Outdoor Units



Туре
Outdoor
Refrigerant
R 410 A
kW
15
Model
10-150 MCDHO



Туре
Outdoor
Refrigerant
R 410 A
kW
29
Model
10-280 MCDHO

(2) Indoor Units



Туре	Wall Indoor		
Refrigerant	R 410 A		
kW	2,5 3,5 5		
Model	10-025 MCDHWI	10-035 MCDHWI	10-050 MCDHWI



Туре	Cassette Indoor		
Refrigerant	R 410 A		
kW	2,5 3,5		
Model	10-025 MCDHKI	MCDHKI 10-035 MCDHKI	



Туре	Cassette Indoor	
Refrigerant	R 410 A	
kW	6	
Model	10-060 MCDHKI	



Туре	Low Static Pressure Duct Indoor		
Refrigerant	R 410 A		
kW	2,5 3,5		
Model	10-025 MCDHDI 10-035 MCDHDI		



Туре	Duct Indoor		
Refrigerant	R 410 A		
kW	7 8		
Model	10-060 MCDHDI 10-075 MCDHDI		

3.1- INTRODUCTION

3.1.1- INDOOR UNIT RANGE

Time	Defriessent	Kapacity (kW)				
Type Refrigerant		2,5	3,5	6	7	8
Wall	R 410 A	10-025 MCDHWI	10-035 MCDHWI	10-050 MCDHWI		
Cassette 6ox6o cms	R 410 A	10-025 MCDHKI	10-035 MCDHKI			
Cassette 90x90 cms	R 410 A			10-060 MCDHKI		
Low Static Pressure Duct	R 410 A	10-025 MCDHDI	10-035 MCDHDI			
Duct	R 410 A				10-060 MCDHDI	10-075 MCDHDI

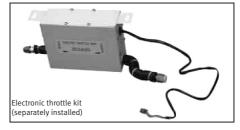
3.1.2- ELECTRONIC THROTTLE KIT

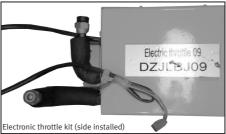
Electronic throttle kit

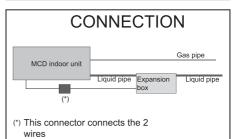
- Extremely low noise, 3dB(A) lower compared with which put EXV into the indoor unit
- Easy maintenance. Being separated from indoor unit, fixed on the body or inside the indoor unit independently, thus it can be replaced easily.
- Easy installation, just quick connection by flare nut.

Remark:

- (1) One electronic Throttle Kit only can be applied to one indoor unit.
- (2) Electronic Throttle Kit needn't order separately, it has been packed with the indoor units together in the factory.









3.1.2- ELECTRONIC THROTTLE KIT

IU PICTURES	MODEL	TYPE OF THROTTLE VALVE (EEV)	DIMENSIONS OF EEV BOX (HxLxD)	CONNECTED ALREADY / TO BE CONNECTED BY INSTALLER
	10-025 MCDHWI	CE-DZJLBJ05	165X215X75mm	Separated
	10-035 MCDHWI	CE-DZJLBJ05	165X215X75mm	Separated
	10-050 MCDHWI	CE-DZJLBJ05	165X215X75mm	Separated
	10-025 MCDHKI	CE-DZJLBJo6	165X216X75mm	Install on the side
	10-050 MCDHKI	CE-DZJLBJ06	165X216X75mm	Install on the side
N.	10-060 MCDHKI	CE-DZJLBJ07	165X216X75mm	Install on the side
	10-025 MCDHDI	CE-DZJLBJ05	165X215X75mm	Separated
	10-035 MCDHDI	CE-DZJLBJ05	165X215X75mm	Separated
	10-060 MCDHDI	CE-DZJLBJ07	165X216X75mm	Install on the side
To see so	10-075 MCDHDI	CE-DZJLBJ07	165X216X75mm	Install on the side

3.2- WALL MOUNTED TYPES

3.2.1- FEATURES

- The evaporator employs a Multi-bend structure which enlarges the heat exchange surface.
- 2. The front panel is tightly fixed with the front frame by simply buckling the latter with a buckle mechanism on the panel.
- **3.** The manual force switch employs comfortable switch push buttons.

3.2.2- SPECIFICATIONS

MODEL			10-025MCDHWI	10-035MCDHWI	10-050MCDHWI			
Power suppl	у	Ph-V-Hz		220-240V-50HZ				
NOMINAL CA	APACITY							
Cooling	Capacity	kW	2.8	3.6	4.5			
Cooling	Input	W	35	35	75			
Heating	Capacity	kW	2.93	3.96	4.84			
пеанну	Input	W	3	35	75			
ELECTRONIC	AL							
Max. input c	onsumption	W	55	55	96			
Max. current		A	0.34	0.34	0.49			
Starting curr	ent	A	2.2	2.2	3.2			
INDOOR MO	TOR							
Model			RPSIIC	RPSIIC	YDK36-4G			
Туре				Cross fan				
Brand				Welling				
Input		W	30±3	30±3	60±5			
Capacitor		uF	1.2/	450V	2/450V			
Speed(hi/m	i/lo)	r/min	1110/10	010/900	1150/1060/960			
INDOOR COI	L							
a.Number of	rows		2					
b.Tube pitch	(a)x row pitch(b)	mm	21X13.37					
c.Fin spacing	g	mm	1	1.3				
d.Fin type (c	ode)		Hydrophilic aluminum					
e.Tube outsi	de dia.and type	mm		Ø 7 inner groove tube	2			
f.Coil length	x height x width	mm	700X3	350X26	810X357X26.74			
g.Number of	circuits			2	2			
Indoor air flo	ow (Hi/Lo)	m3/h	500/430/370	580/500/420	850/610/470			
Indoor noise	e leve) (Hi/Lo)	dB(A)	34	37	41			
TECHNICAL S	SPECIFICATION							
	Dimension (W*H*D)	mm	790x265x195	790x265x195	920x292x225			
indoor unit	Packing (W*H*D)	mm	875x375x285	875x375x285	1015X368X295			
	Net/Gross weight	Kg	11/14	11/14	11/14			
Piping size	Liquid/ Gas side	inches	1/4-1/2	1/4-1/2	1/4-1/2			
Qty per 20'/	40'/40'HQ	Pieces	312/668/780	312/668/780	288/578/653			

Notes

- Nominal cooling capacities are based on the following conditions: return air temperature: 27°CDB,19°CWB,outdoor temperature: 35°CDB, equivalent ref. Piping: 8m(horizontal).
- 2. Nominal heating capacities are based on the following conditions: return air temperature: 20°CDB,outdoor temperature: 7°CDB,6°CWB,equivalent ref.Piping: 8m(horizontal).



3.2.3- CAPACITY TABLE

(1) Cooling

TC: total capacity
SHC: sensible capacity

							Indoo	r tempe	erature	(°c,WB)					
Unit	Outdoor	1	4	1	6	1	.8	1	9	2	20	2	2	2	:4
size	temperature (°c,DB)	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	10	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	12	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	14	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	16	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	18	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	20	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	21	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
2.8	23	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
2.0	25	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	27	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	29	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	31	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	33	1.9	1.6	2.3	1.7	2.7	1.9	2.9	2.0	3.1	2.1	3.5	2.2	3.9	2.4
	35	1.9	1.6	2.3	1.7	2.7	1.9	2.8	2.0	3.1	2.1	3.5	2.2	3.9	2.4
	37	1.9	1.6	2.3	1.7	2.7	1.9	2.8	2.0	3.1	2.1	3.5	2.2	3.9	2.4
	39	1.9	1.6	2.3	1.7	2.7	1.9	2.8	2.0	3.1	2.1	3.5	2.2	3.9	2.4
	10	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	12	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	14	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	16	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	18	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	20	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	21	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
3.6	23	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
٠,٠٠	25	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	27	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	29	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	31	2.7	2.4	3.1	2.6	3.5	2.8	3.7	2.9	3.9	3.0	4.3	3.1	4.7	3.2
	33	2.7	2.4	3.1	2.6	3.5	2.8	3.7	2.9	3.9	3.0	4.3	3.1	4.7	3.2
	35	2.7	2.4	3.1	2.6	3.5	2.8	3.6	2.9	3.9	3.0	4.3	3.1	4.7	3.2
	37	2.7	2.4	3.1	2.6	3.5	2.8	3.6	2.9	3.9	3.0	4.3	3.1	4.7	3.2
	39	2.7	2.4	3.1	2.6	3.5	2.8	3.6	2.9	3.9	3.0	4.3	3.1	4.7	3.2

3.2.3- CAPACITY TABLE

(1) Cooling

TC: total capacity
SHC: sensible capacity

		Indoor temperature (°c,WB)													
Unit	Outdoor	1	4	1	.6	1	8	1	9	2	:0	2	2	2	:4
size	temperature (°c,DB)	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	10	3.3	3.0	3.9	3.3	4.4	3.7	4.8	3.8	5.1	3.9	5.6	4.0	6.2	4.1
	12	3.3	3.0	3.9	3.3	4.4	3.7	4.8	3.8	5.1	3.9	5.6	4.0	6.2	4.1
	14	3.3	3.0	3.9	3.3	4.4	3.7	4.8	3.8	5.1	3.9	5.6	4.0	6.2	4.1
	16	3.3	3.0	3.9	3.3	4.4	3.7	4.8	3.8	5.1	3.9	5.6	4.0	6.2	4.1
	18	3.3	3.0	3.9	3.3	4.4	3.7	4.8	3.8	5.1	3.9	5.6	4.0	6.2	4.1
	20	3.3	3.0	3.9	3.3	4.4	3.7	4.8	3.8	5.1	3.9	5.6	4.0	6.2	4.1
	21	3.2	2.9	3.8	3.2	4.3	3.6	4.7	3.7	5.0	3.8	5.5	4.0	6.1	4.1
4.5	23	3.2	2.9	3.8	3.2	4.3	3.6	4.7	3.7	5.0	3.8	5.5	4.0	6.1	4.1
4.5	25	3.2	2.9	3.8	3.2	4.3	3.6	4.7	3.7	5.0	3.8	5.5	4.0	6.1	4.1
	27	3.2	2.9	3.8	3.2	4.3	3.6	4.7	3.7	5.0	3.8	5.5	4.0	6.1	4.1
	29	3.2	2.9	3.8	3.2	4.3	3.6	4.7	3.7	5.0	3.8	5.5	4.0	6.1	4.1
	31	3.2	2.9	3.8	3.2	4.3	3.6	4.7	3.7	5.0	3.8	5.5	4.0	6.1	4.1
	33	3.2	2.9	3.8	3.2	4.3	3.6	4.7	3.7	5.0	3.8	5.5	4.0	6.1	4.1
	35	3.1	2.8	3.7	3.1	4.2	3.5	4.5	3.6	4.9	3.7	5.4	3.9	6.0	4.0
	37	3.1	2.8	3.7	3.1	4.2	3.5	4.5	3.6	4.9	3.7	5.4	3.9	6.0	4.0
	39	3.1	2.8	3.7	3.1	4.2	3.5	4.5	3.6	4.8	3.7	5.3	3.8	5.9	3.9

3.2.3- CAPACITY TABLE

(2) Heating

TC: total capacity

	Out	door			Indoor tempe	erature (°C)DB		
	tempe	erature	14	16	18	20	22	24
Unit size			TC	TC	TC	TC	TC	TC
	DB	WB	kW	kW	kW	kW	KW	Kw
	-15.0	-15.8	2.0	2.0	1.9	1.9	1.8	1.8
	-14.0	-14.8	2.0	2.0	2.0	2.0	2.0	2.0
	-12.0	-12.8	2.2	2.2	2.2	2.1	2.1	2.1
	-10.0	-10.8	2.4	2.4	2.4	2.2	2.2	2.2
	-8.0	8.8	2.6	2.6	2.6	2.3	2.3	2.3
	-6.0	-7.0	2.8	2.8	2.8	2.4	2.4	2.4
	-4.0	-5.0	3.0	3.0	3.0	2.6	2.6	2.6
- 0	-2.0	-3.0	3.2	3.2	3.2	2.8	2.8	2.8
2,8	0.0	-1.0	3.5	3.5	3.4	3.0	3.0	3.0
	3.0	2.0	3.6	3.5	3.4	3.2	3.0	2.8
	5.0	4.0	3.6	3.5	3.4	3.2	3.0	2.8
	7.0	6.0	3.6	3.5	3.4	3.2	3.0	2.8
	9.0	8.0	3.6	3.5	3.4	3.2	3.0	2.8
	11	10.0	3.6	3.5	3.4	3.2	3.0	2.8
	13	12.0	3.6	3.5	3.4	3.2	3.0	2.8
	15	14.0	3.6	3.5	3.4	3.2	3.0	2.8
	-15.0	-15.8	2.6	2.6	2.6	2.6	2.5	2.4
	-14.0	-14.8	2.6	2.6	2.6	2.6	2.6	2.6
	-12.0	-12.8	2.8	2.8	2.8	2.7	2.7	2.7
	-10.0	-10.8	3.0	3.0	3.0	2.7	2.7	2.7
	-8.0	8.8	3.2	3.2	3.2	2.8	2.8	2.8
	-6.0	-7.0	3.4	3.4	3.4	3.0	3.0	3.0
	-4.0	-5.0	3.6	3.6	3.6	3.2	3.2	3.2
26	-2.0	-3.0	4.0	4.0	3.7	3.4	3.4	3.4
3.6	0.0	-1.0	4.2	4.2	3.9	3.6	3.6	3.6
	3.0	2.0	4.4	4.4	4.1	3.8	3.8	3.8
	5.0	4.0	4.6	4.6	4.3	4.0	3.7	3.4
	7.0	6.0	4.6	4.6	4.3	4.0	3.7	3.4
	9.0	8.0	4.6	4.6	4.3	4.0	3.7	3.4
	11	10.0	4.6	4.6	4.3	4.0	3.7	3.4
	13	12.0	4.6	4.6	4.3	4.0	3.7	3.4
	15	14.0	4.6	4.6	4.3	4.0	3.7	3.4

3.2.3- CAPACITY TABLE

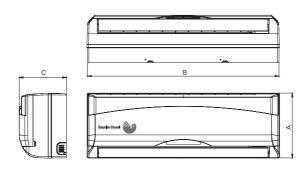
(2) Heating

TC: total capacity

	Out	door	Indoor temperature (°C)DB							
Halfa atau	temperature		14	16	18	20	22	24		
Unit size			TC	TC	TC	TC	TC	TC		
	DB	WB	kW	kW	kW	kW	KW	Kw		
	-15.0	-15.8	3.2	3.2	3.1	3.1	3.0	3.0		
	-14.0	-14.8	3.5	3.5	3.5	3.2	3.2	3.2		
	-12.0	-12.8	3.7	3.7	3.7	3.4	3.4	3.4		
	-10.0	-10.8	4.0	4.0	4.0	3.6	3.6	3.6		
	-8.0	8.8	4.3	4.3	4.3	3.8	3.8	3.8		
	-6.0	-7.0	4.6	4.6	4.6	4.0	4.0	4.0		
	-4.0	-5.0	5.0	5.0	5.0	4.2	4.2	4.0		
4.5	-2.0	-3.0	5.3	5.3	5.3	4.4	4.4	4.0		
4.5	0.0	-1.0	5.5	5.5	5.3	4.6	4.4	4.2		
	3.0	2.0	5.8	5.8	5.4	4.8	4.6	4.2		
	5.0	4.0	5.8	5.8	5.4	5.0	4.6	4.2		
	7.0	6.0	5.8	5.8	5.4	5.0	4.6	4.2		
	9.0	8.0	5.8	5.8	5.4	5.0	4.6	4.2		
	11	10.0	5.8	5.8	5.4	5.0	4.6	4.2		
	13	12.0	5.8	5.8	5.4	5.0	4.6	4.2		
	15	14.0	5.8	5.8	5.4	5.0	4.6	4.2		

3.2.4- DIMENSION

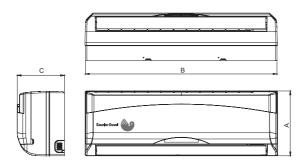
(1) 10-025MCDHWI, 10-035MCDHWI



Model	Α	В	С	Kg
10-025MCDHWI	265	790	193	11
10-035MCDHWI	265	790	193	11

Dimensions in mm

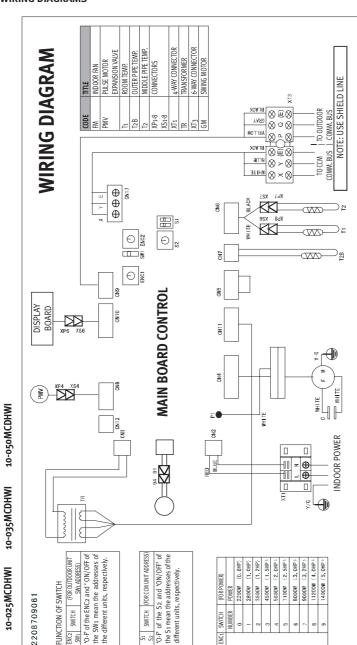
(2) 10-050MCDHWI



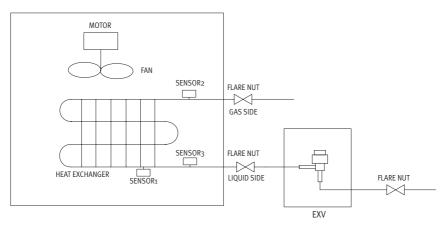
Model	A	В	С	Kg
10-050MCDHWI	292	920	225	15

Dimensions in mm

3.2.5- WIRING DIAGRAMS

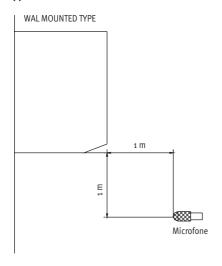


3.2.6- REFRIGENT SYSTEM DIAGRAM



3.2.7- NOISE LEVEL

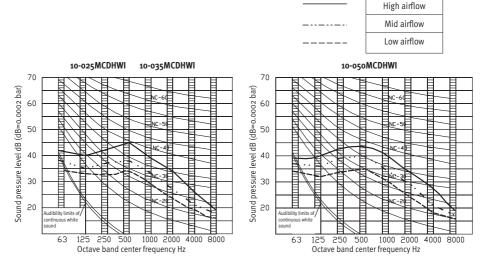
(1) Test condition



Model	220V-240V 50HZ						
Model	Н	М	L				
10-025MCDHWI	42	39	36				
10-035MCDHWI	42	39	36				
10-050MCDHWI	46	43	39				

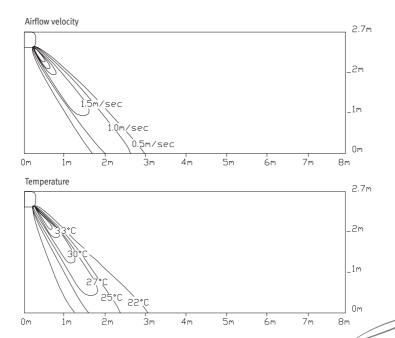
3.2.7- NOISE LEVEL

(2) Noise spectrums



3.2.8- VELOCITY & TEMPERATURE DISTRIBUTION

Discharge angle 70 °





3.2.9- FUNCTION PARTS SAFETY DEVICE

Model MCD		10-025MCDHWI 10-035MCDHWI 10-050MCDHWI
Cafabadadaa	PC board fuse	5A
Safety device	Fan motor thermal protector	BW130
Functional device	Electronic throttle kit	DZJLBJ03

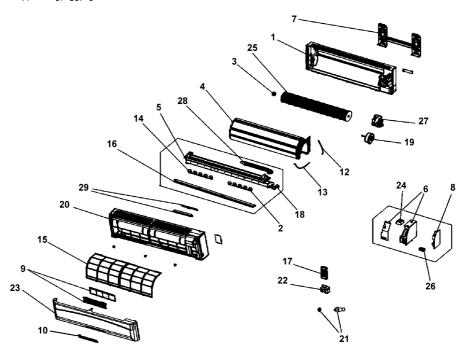
3.2.10- OPTIONAL ACCESSORIES

Number	Item
1	Central controller
2	Network controller *

^{*} This accessory is not available yet

3.2.11- EXPLODED VIEW PARTS

(1) 10-025/035/050 MCDHWI



3.2.11- EXPLODED VIEW PARTS

(1) 10-025/035/050 MCDHWI

Description	Model	Number
REAR COVER	10-025-035-050 MCDHWI	1
DEFLECTORS SUPPORTS	10-025-035-050 MCDHWI	2
FAN SHAFT UNION	10-025-035-050 MCDHWI	3
COIL	10-025-035-050 MCDHWI	4
DRAIN PAN	10-025-035-050 MCDHWI	5
INSTALLATION PLATE	10-025-035-050 MCDHWI	7
PCB	10-025-035-050 MCDHWI	8
AIR CLEANER + HOLDER	10-025-035-050 MCDHWI	9
ROOM TEMPERATURE SENSOR	10-025-035-050 MCDHWI	12
COIL SENSOR	10-025-035-050 MCDHWI	13
LOUVERS	10-025-035-050 MCDHWI	14
AIR FILTER	10-025-035-050 MCDHWI	15
DEFLECTOR	10-025-035-050 MCDHWI	16
REMOTE CONTROL	10-025-035-050 MCDHWI	17
MOTOR AIR SWING	10-025-035-050 MCDHWI	18
FRONT COVER	10-025-035-050 MCDHWI	20
FRONT GRILLE	10-025-035-050 MCDHWI	23
TANGENTIAL FAN	10-025-035-050 MCDHWI	25
TERMINAL BLOCK	10-025-035-050 MCDHWI	26
DRAIN HOSE	10-025-035-050 MCDHWI	28
RECEIVER	10-025-035-050 MCDHWI	29

3.3- FOUR-WAY CASSETTE TYPE

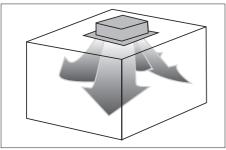
3.3.1- FEATURES

(1) Low operation noise

- Streamline plate ensures quietness
- · Creates natural and comfortable environment

(2) Efficient cooling

• Equal, fast and wide—range cooling



Four way air flow

(3) The adoption of the most advanced 3- Dimensional Screw fan

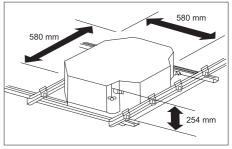
- · Reduces the air resistance passing through
- · Smoothes the air flow
- Makes air speed distribution to the heat exchange uniform



3 Dimensional screw fan

(4) Improvement for easy installation and maintenance (only available for small fourway cassette)

- Little space is required for installation into a shallow ceiling
- Because of the compactness and weight reduction of the main unit and panel, all models can be installed without a hoist



The sketch map of installation



3.3.2- SPECIFICATIONS

MODEL			10-025MCDHKI	10-035MCDHKI	10-050MCDHKI			
Power supply Ph-V-Hz			220-240V-50HZ					
NOMINAL CA	PACITY							
Cooling		kW	2,8	3,6	5.6			
Cooling	Input	W	65	65	100			
Heating	Capacity	kW	2.93	3.96	5.80			
Heating	Input	W	ϵ	55	100			
ELECTRONIC	AL							
Max. input c	onsumption	W	85	85	126			
Max. current		А	0.35	0.35	0.6			
Starting curr	ent	А	3.6	3.6	3.6			
INDOOR MO	TOR							
Model			YDK45-4F	YDK45-4F	R6PS25			
Туре				Centrifugal fan				
Brand				Welling				
Input		W	63±3 63±3		85±8			
Capacitor		uF	2.5/	450V	5.0/450V			
Speed(hi/mi/lo)		r/min	1110/10	010/900	650/600/550			
INDOOR COI	L							
a.Number of	rows			2				
b.Tube pitch	(a)x row pitch(b)	mm	21X:	25,4X22				
c.Fin spacing	3	mm	1.3					
d.Fin type (c	ode)		Hydrophilic aluminum					
e.Tube outsi	de dia.and type	mm		2				
f.Coil length	x height x width	mm	1185X2	2000X170X27				
g.Number of	circuits			5	4			
Indoor air flo	w (Hi/Lo)	m3/h	860/7	1010X920X840				
TECHNICAL S	SPECIFICATION							
	Dimension (W*H*D)	mm	580X2	54X580	840X240X840			
indoor unit	Packing (W*H*D)	mm	750 X3	40 x 750	1010X340 X930			
	Net/Gross weight	Kg	21	/30	25/32			
	Dimension (W*H*D)	mm	650X3	oX650	950X40X950			
Panel	Packing (W*H*D)	mm	715X1	15X715	1030X145X1030			
	Net/Gross weight	Kg	3/5		6/11			
Aplication a	rea		18-36 28-56		35/71			
Piping size		inches	1/4	3/8-5/8				
Qty per 20'/	40'/40'HQ	Pieces	119/2	62/132/135				

Notes:

- Nominal cooling capacities are based on the following conditions: return air temperature: 27°CDB,19°CWB,outdoor temperature: 35°CDB, equivalent ref. Piping: 8m(horizontal).
- 2. Nominal heating capacities are based on the following conditions:return air temperature: 20°CDB,outdoor temperature: 7°CDB,6°CWB,equivalent ref.Piping: 8m(horizontal).



3.3.3- CAPACITY TABLE

(1) Cooling

TC: total capacity
SHC: sensible capacity

		Indoor temperature (°c,WB)													
Unit	Outdoor	1	4	1	6	1	.8	1	9	20		22		24	
size	temperature (°c,DB)	TC	SHC	тс	SHC	TC	SHC								
	(3,2 2,	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	10	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	12	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	14	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	16	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	18	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	20	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	21	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
2.8	23	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
2.0	25	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.0	2.2	3.6	2.3	4.0	2.6
	27	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.0	2.2	3.6	2.3	4.0	2.6
	29	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.0	2.2	3.6	2.3	4.0	2.6
	31	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.0	2.2	3.6	2.3	4.0	2.6
	33	1.9	1.6	2.3	1.7	2.7	1.9	2.9	2.0	3.0	2.1	3.5	2.2	3.9	2.4
	35	1.9	1.6	2.3	1.7	2.7	1.9	2.9	2.0	2.8	2.1	3.5	2.2	3.9	2.4
	37	1.9	1.6	2.3	1.7	2.7	1.9	2.9	2.0	2.8	2.1	3.5	2.2	3.9	2.4
	39	1.9	1.6	2.3	1.7	2.7	1.9	2.9	2.0	2.8	2.1	3.5	2.2	3.9	2.4
	10	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	12	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	14	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	16	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	18	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	20	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	21	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
3.6	23	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	25	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	3.8	3.1	4.4	3.2	4.8	3.3
	27	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	3.8	3.1	4.4	3.2	4.8	3.3
	29	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	3.8	3.1	4.4	3.2	4.8	3.3
	31	2.7	2.4	3.1	2.6	3.5	2.8	3.7	2.9	3.8	3.0	4.3	3.1	4.7	3.2
	33	2.7	2.4	3.1	2.6	3.5	2.8	3.7	2.9	3.8	3.0	4.3	3.1	4.7	3.2
	35	2.7	2.4	3.1	2.6	3.5	2.8	3.7	2.9	3.6	3.0	4.3	3.1	4.7	3.2
	37	2.7	2.4	3.1	2.6	3.5	2.8	3.7	2.9	3.6	3.0	4.3	3.1	4.7	3.2
	39	2.7	2.4	3.1	2.6	3.5	2.8	3.7	2.9	3.6	3.0	4.3	3.1	4.7	3.2



3.3.3- CAPACITY TABLE

(1) Cooling

TC: total capacity
SHC: sensible capacity

		Indoor temperature (°c,WB)													
Unit	Outdoor	1	14	1	.6	1	.8	1	9	2	20	2	2	2	24
size	temperature (°c,DB)	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	10	4.3	3.7	4.9	3.9	5.5	4.2	5.8	4.3	6.1	4.4	6.7	4.5	7.3	4.6
	12	4.3	3.7	4.9	3.9	5.5	4.2	5.8	4.3	6.1	4.4	6.7	4.5	7.3	4.6
	14	4.3	3.7	4.9	3.9	5.5	4.2	5.8	4.3	6.1	4.4	6.7	4.5	7.3	4.6
	16	4.3	3.7	4.9	3.9	5.5	4.2	5.8	4.3	6.1	4.4	6.7	4.5	7.3	4.6
	18	4.3	3.7	4.9	3.9	5.5	4.2	5.8	4.3	6.1	4.4	6.7	4.5	7.3	4.6
	20	4.3	3.7	4.9	3.9	5.5	4.2	5.8	4.3	6.1	4.4	6.7	4.5	7.3	4.6
	21	4.3	3.7	4.9	3.9	5.5	4.2	5.8	4.3	6.0	4.4	6.7	4.5	7.3	4.6
5.6	23	4.3	3.7	4.9	3.9	5.5	4.2	5.8	4.3	6.0	4.4	6.7	4.5	7.3	4.6
5.0	25	4.3	3.7	4.9	3.9	5.5	4.2	5.8	4.3	6.0	4.4	6.7	4.5	7.3	4.6
	27	4.3	3.7	4.9	3.9	5.5	4.2	5.8	4.3	5.8	4.4	6.7	4.5	7.3	4.6
	29	4.3	3.7	4.9	3.9	5.5	4.2	5.8	4.3	5.8	4.4	6.7	4.5	7.3	4.6
	31	4.3	3.7	4.9	3.9	5.5	4.2	5.8	4.3	5.8	4.4	6.7	4.5	7.3	4.6
	33	4.2	3.6	4.8	3.8	5.4	4.1	5.7	4.2	5.8	4.3	6.6	4.4	7.2	4.5
	35	4.2	3.6	4.8	3.8	5.4	4.1	5.7	4.2	5.6	4.3	6.6	4.4	7.2	4.5
	37	4.2	3.6	4.8	3.8	5.4	4.1	5.7	4.2	5.6	4.3	6.6	4.4	7.2	4.5
	39	4.2	3.6	4.8	3.8	5.4	4.1	5.7	4.2	5.6	4.3	6.6	4.4	7.2	4.5

3.3.3- CAPACITY TABLE

(2) Heating

TC: total capacity

	Outdoor		Indoor temperature (°C)DB							
11-14-1	tempe	erature	14	16	18	20	22	24		
Unit size			TC	TC	TC	TC	TC	TC		
	DB	WB	kW	kW	kW	kW	KW	Kw		
	-15.0	-15.8	2.0	2.0	1.9	1.9	1.8	1.8		
	-14.0	-14.8	2.0	2.0	2.0	2.0	2.0	2.0		
	-12.0	-12.8	2.2	2.2	2.2	2.1	2.1	2.1		
	-10.0	-10.8	2.4	2.4	2.4	2.2	2.2	2.2		
	-8.0	8.8	2.6	2.6	2.6	2.3	2.3	2.3		
	-6.0	-7.0	2.8	2.8	2.8	2.4	2.4	2.4		
	-4.0	-5.0	3.0	3.0	3.0	2.6	2.6	2.6		
- 0	-2.0	-3.0	3.2	3.2	3.2	2.8	2.8	2.8		
2,8	0.0	-1.0	3.5	3.5	3.4	3.0	3.0	3.0		
	3.0	2.0	3.6	3.5	3.4	3.2	3.0	2.8		
	5.0	4.0	3.6	3.5	3.4	3.2	3.0	2.8		
	7.0	6.0	3.6	3.5	3.4	3.2	3.0	2.8		
	9.0	8.0	3.6	3.5	3.4	3.2	3.0	2.8		
	11	10.0	3.6	3.5	3.4	3.2	3.0	2.8		
	13	12.0	3.6	3.5	3.4	3.2	3.0	2.8		
	15	14.0	3.6	3.5	3.4	3.2	3.0	2.8		
	-15.0	-15.8	2.6	2.6	2.6	2.6	2.5	2.4		
	-14.0	-14.8	2.6	2.6	2.6	2.6	2.6	2.6		
	-12.0	-12.8	2.8	2.8	2.8	2.7	2.7	2.7		
	-10.0	-10.8	3.0	3.0	3.0	2.7	2.7	2.7		
	-8.0	8.8	3.2	3.2	3.2	2.8	2.8	2.8		
	-6.0	-7.0	3.4	3.4	3.4	3.0	3.0	3.0		
	-4.0	-5.0	3.6	3.6	3.6	3.2	3.2	3.2		
26	-2.0	-3.0	4.0	4.0	3.7	3.4	3.4	3.4		
3.6	0.0	-1.0	4.2	4.2	3.9	3.6	3.6	3.6		
	3.0	2.0	4.4	4.4	4.1	3.8	3.8	3.8		
	5.0	4.0	4.6	4.6	4.3	4.0	3.7	3.4		
	7.0	6.0	4.6	4.6	4.3	4.0	3.7	3.4		
	9.0	8.0	4.6	4.6	4.3	4.0	3.7	3.4		
	11	10.0	4.6	4.6	4.3	4.0	3.7	3.4		
	13	12.0	4.6	4.6	4.3	4.0	3.7	3.4		
	15	14.0	4.6	4.6	4.3	4.0	3.7	3.4		



3.3.3- CAPACITY TABLE

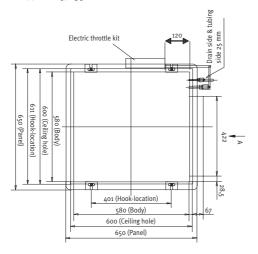
(2) Heating

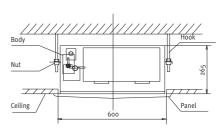
TC: total capacity

	Outdoor		Indoor temperature (°C)DB							
Unit ains	tempe	erature	14	16	18	20	22	24		
Unit size			TC	TC	TC	TC	TC	TC		
	DB	WB	kW	kW	kW	kW	KW	Kw		
	-15.0	-15.8	4.0	4.0	4.0	4.0	3.8	3.8		
	-14.0	-14.8	4.2	4.2	4.2	4.2	4.2	4.2		
	-12.0	-12.8	4.4	4.4	4.4	4.4	4.4	4.4		
	-10.0	-10.8	4.6	4.6	4.6	4.6	4.6	4.6		
	-8.0	8.8	4.8	4.8	4.8	4.8	4.8	4.8		
	-6.0	-7.0	5.2	5.2	5.2	5.1	4.8	4.8		
	-4.0	-5.0	5.6	5.6	5.6	5.4	5.1	5.1		
5,6	-2.0	-3.0	6.0	6.0	6.0	5.7	5.3	5.1		
5,0	0.0	-1.0	6.4	6.4	6.4	6.0	5.5	5.1		
	3.0	2.0	6.8	6.8	6.8	6.3	5.8	5.3		
	5.0	4.0	6.8	6.8	6.8	6.3	5.8	5.3		
	7.0	6.0	6.8	6.8	6.8	6.3	5.8	5.3		
	9.0	8.0	6.8	6.8	6.8	6.3	5.8	5.3		
	11	10.0	6.8	6.8	6.8	6.3	5.8	5.3		
	13	12.0	6.8	6.8	6.8	6.3	5.8	5.3		
	15	14.0	6.8	6.8	6.8	6.3	5.8	5.3		

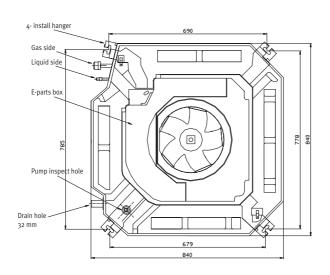
3.3.4- DIMENSION

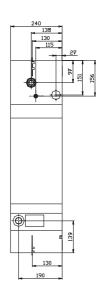
(1) 10-025/035MCDHKI





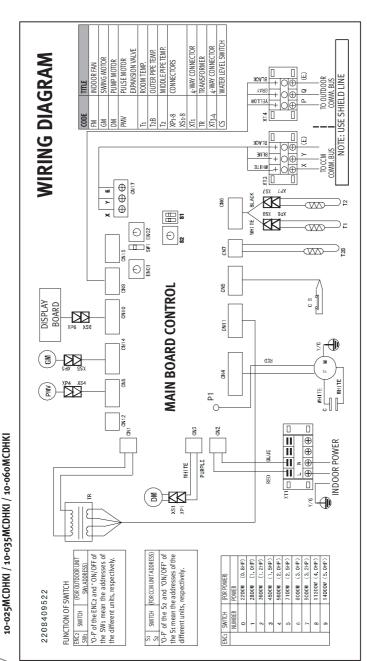
(2) 10-060MCDHKI







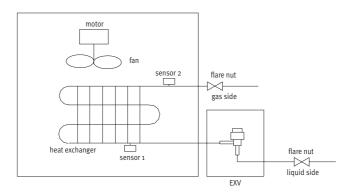
3.3.5- WIRING DIAGRAM



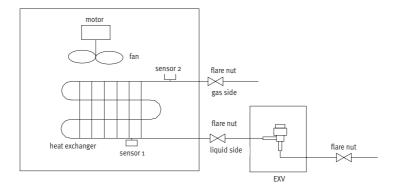


3.3.6- REFRIGERANT SYSTEM DIAGRAM

(1) For model 10-025/035MCDHKI

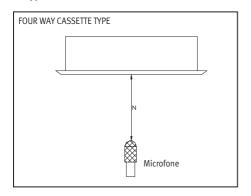


(2) For model 10-060MCDHKI



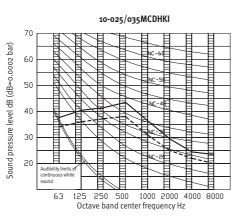
3.3.7- NOISE LEVEL

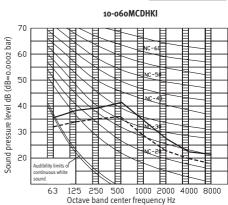
(1) Test condition



Model	220V-240V 50HZ				
modet	Н	L			
10-025MCDHKI	43	37			
10-035MCDHKI	43	37			
10-060MCDHKI	44	38			

(2) Noise spectrums

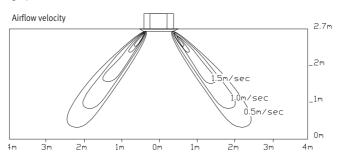


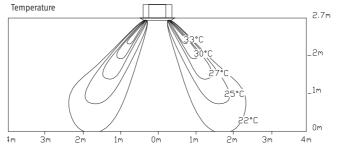


High airflow Low airflow

3.3.8- VELOCITY & TEMPERATURE DISTRIBUTION

Discharge angle 70 °





3.3.9- FUNCTION PARTS SAFETY DEVICE

Model MCD		10-025MCDHKI 10-035MCDHKI	10-060MCDHKI		
Cafata davida	PC board fuse	5A			
Safety device	Fan motor thermal protector	BW130			
Functional device	Electronic throttle kit	DZJLBJ06	DZJLBJ07		

3.3.10- OPTIONAL ACCESSORIES

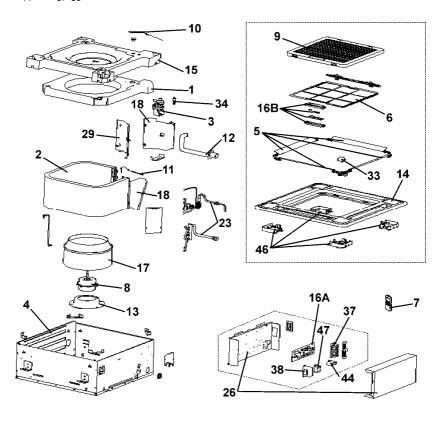
Number	Item
1	Wired controller
2	Central controller
3	Network controller *

^{*} This accessory is not available yet



3.3.11- EXPLODED VIEW PARTS

(1) 10-025/035 MCDHKI



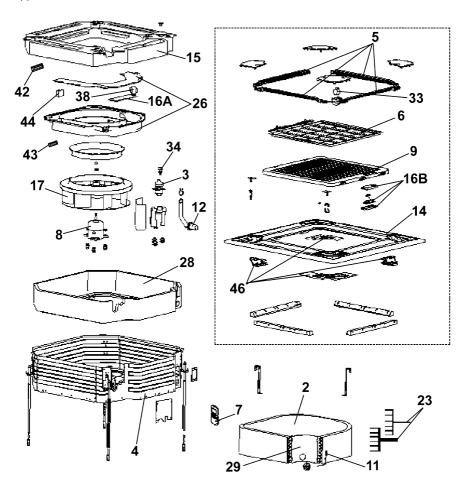
3.3.11- EXPLODED VIEW PARTS

(1) 10-025/035 MCDHKI

Description	Model	Number
POLYESTYRENE PAN	10-035 MCDHKI	1
COIL	10-035 MCDHKI	2
DRAIN PUMP	10-035 MCDHKI	3
UNIT S CASING	10-035 MCDHKI	4
DEFLECTORS	10-035 MCDHKI	5
AIR FILTER	10-035 MCDHKI	6
REMOTE CONTROL	10-035 MCDHKI	7
FAN MOTOR	10-035 MCDHKI	8
GRILLE	10-035 MCDHKI	9
TEMPERATURE SENSOR	10-035 MCDHKI	10
PIPE SENSOR	10-035 MCDHKI	11
DRAIN TUBE	10-035 MCDHKI	12
FAN MOTOR SUPPORT	10-035 MCDHKI	13
FRONT PANEL ASSEMBLY	10-035 MCDHKI	14
DRAIN PAN	10-035 MCDHKI	15
FAN	10-035 MCDHKI	17
COIL CENTRAL DIVISOR	10-035 MCDHKI	18
PIPING	10-035 MCDHKI	23
ELECTRONIC CONTROL BOX	10-035 MCDHKI	26
COIL S SUPPORT PLATTE	10-035 MCDHKI	29
AIR SWING MOTOR	10-035 MCDHKI	33
FLOAT	10-035 MCDHKI	34
WIRING FIXATION BASE	10-035 MCDHKI	37
TRANSFORMER	10-035 MCDHKI	38
FAN CAPACITOR	10-035 MCDHKI	44
CORNER COVERS	10-035 MCDHKI	46
PCB	10-035 MCDHKI	16A
RECEIVER	10-035 MCDHKI	16B

3.3.11- EXPLODED VIEW PARTS

(2) 10-060MCDHKI



3.3.11- EXPLODED VIEW PARTS

(2) 10-060MCDHKI

Description	Model	Number
COIL	10-060 MCDHKI	2
DRAIN PUMP	10-060 MCDHKI	3
UNIT S CASING	10-060 MCDHKI	4
DEFLECTORS	10-060 MCDHKI	5
AIR FILTER	10-060 MCDHKI	6
REMOTE CONTROL	10-060 MCDHKI	7
FAN MOTOR	10-060 MCDHKI	8
GRILLE	10-060 MCDHKI	9
OUTDOOR TEMPERATURE SENSOR	10-060 MCDHKI	10
PIPE SENSOR	10-060 MCDHKI	11
DRAIN TUBE	10-060 MCDHKI	12
COIL SENSOR	10-060 MCDHKI	13
FRONT PANEL ASSEMBLY	10-060 MCDHKI	14
DRAIN PAN	10-060 MCDHKI	15
FAN	10-060 MCDHKI	17
PIPING	10-060 MCDHKI	23
COIL ATTACHMENTS	10-060 MCDHKI	24
COIL BASE	10-060 MCDHKI	28
COIL S SUPPORT PLATTE	10-060 MCDHKI	29
AIR SWING MOTOR	10-060 MCDHKI	33
FLOAT	10-060 MCDHKI	34
TRANSFORMER	10-060 MCDHKI	38
TERMINAL BLOCK	10-060 MCDHKI	42
TERMINAL BLOCK	10-060 MCDHKI	43
FAN CAPACITOR	10-060 MCDHKI	44
CORNER COVERS	10-060 MCDHKI	46
PCB	10-060 MCDHKI	16A
RECEIVER	10-060 MCDHKI	16B



3.4- DUCT TYPE

3.4.1- FEATURES

(1) Normal body

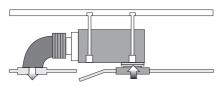
Economic and convenient installation

- Several diffusers branch off from an indoor unit, adjusting the room temperature, which makes many rooms to be air-conditioned with only one indoor unit.
- All models feature thin design making them applicable to ceiling pocket that tends to be shallow



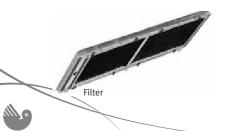
Way of air intake and inserting air filter

 Air intake can be positioned either at the back or below the unit. Similarly, the air filter also can be inserted either from the back or from the bottom of the unit.



Air intake for below

A long-life and high-efficiency filter



(2) All-plastic body

- Low operation noise
- · Compact Structure and light weight
- Adopt Cross Fan
- Adopt 4-bend Evaporator with High Efficient



3.4.2- SPECIFICATIONS

MODEL			10-025MCDHDI	10-035MCDHDI	10-060MCDHDI	10-075MCDHDI		
Power suppl	y	Ph-V-Hz		220-24	oV-50HZ			
NOMINAL CA	PACITY							
Caalina	Capacity	kW	2.8	3.6	7.1	8.0		
Cooling	Input	W	4	0	10	60		
Heating	Capacity	kW	2.93	3.96	7.8	9.09		
пеанну	Input	W	4	0	160			
ELECTRONIC	AL							
Max. input c	onsumption	W	5	0	3	35		
Max. current		A	0.	21	1	.7		
Starting curr	ent	A	3	.1	9	.5		
INDOOR MOTOR								
Model			RPS	20D	YSK;	74-4C		
Туре			Cros	s fan	Centrui	igal fan		
Brand				We	lling			
Input		W	34	i-5	138	±16		
Capacitor	Capacitor		1.0/	450V	2.5/	450V		
Speed(hi/mi	i/lo)	r/min	805/7	15/635	1100/10	20/900		
INDOOR COI	L							
a.Number of	rows		2			3		
b.Tube pitch	(a)x row pitch(b)	mm	21X1	3.37	25.4X22			
c.Fin spacing	3	mm	1.	6	1.7			
d.Fin type (c	ode)			Hydrophili	c aluminum			
e.Tube outsi	de dia.and type	mm	Ø7 inner g	groove tube	Ø 9-53 inne	r groove tube		
f.Coil length	x height x width	mm	700X3	50X26	800X2	254X66		
g.Number of	circuits		1	4		3		
Indoor air flo	ow (Hi/Lo)	m ³ /h	580/49	90/420	1140/10	30/1000		
TECHNICAL SPECIFICATION								
Dimension (W*H*D) mm		mm	870*38	85*210	1000X8	00X298		
indoor unit Packing (W*H*D) mm		mm	1114X4	69X277	1205X930X370			
Net/Gross weight Kg		15,	19	38/46				
Aplication a	rea	m ²	14-28	18-36	35-71	40-80		
Piping size	Liquid/ Gas side	inches	1/4	-1/2	3/8-5/8			
Qty per 20'/40'/40'HQ Pieces		Pieces	214/43	37/480	60/140/164			

Notes

- Nominal cooling capacities are based on the following conditions: return air temperature: 27°CDB,19°CWB,outdoor temperature: 35°CDB, equivalent ref. Piping: 8m(horizontal).
- 2. Nominal heating capacities are based on the following conditions: return air temperature: 20°CDB,outdoor temperature: 7°CDB,6°CWB,equivalent ref.Piping: 8m(horizontal).



3.4.3- CAPACITY TABLE

(1) Cooling

TC: total capacity
SHC: sensible capacity

							Indoo	r tempe	erature	(°c,WB)					
Unit	Outdoor	1	14	1	6	1	.8	1	.9	2	20	2	2	2	:4
size	temperature (°c,DB)	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	10	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	12	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	14	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	16	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	18	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	20	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	21	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
2.8	23	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
2.0	25	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	27	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	29	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	31	2.0	1.7	2.4	1.8	2.8	2.0	3.0	2.1	3.2	2.2	3.6	2.3	4.0	2.6
	33	1.9	1.6	2.3	1.7	2.7	1.9	2.9	2.0	3.1	2.1	3.5	2.2	3.9	2.4
	35	1.9	1.6	2.3	1.7	2.7	1.9	2.8	2.0	3.1	2.1	3.5	2.2	3.9	2.4
	37	1.9	1.6	2.3	1.7	2.7	1.9	2.8	2.0	3.1	2.1	3.5	2.2	3.9	2.4
	39	1.9	1.6	2.3	1.7	2.7	1.9	2.8	2.0	3.1	2.1	3.5	2.2	3.9	2.4
	10	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	12	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	14	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	16	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	18	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	20	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	21	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
3.6	23	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	25	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	27	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	29	2.8	2.5	3.2	2.7	3.6	2.9	3.8	3.0	4.0	3.1	4.4	3.2	4.8	3.3
	31	2.7	2.4	3.1	2.6	3.5	2.8	3.7	2.9	3.9	3.0	4.3	3.1	4.7	3.2
	33	2.7	2.4	3.1	2.6	3.5	2.8	3.7	2.9	3.9	3.0	4.3	3.1	4.7	3.2
	35	2.7	2.4	3.1	2.6	3.5	2.8	3.6	2.9	3.9	3.0	4.3	3.1	4.7	3.2
	37	2.7	2.4	3.1	2.6	3.5	2.8	3.6	2.9	3.9	3.0	4.3	3.1	4.7	3.2
	39	2.7	2.4	3.1	2.6	3.5	2.8	3.6	2.9	3.9	3.0	4.3	3.1	4.7	3.2

3.4.3- CAPACITY TABLE

(1) Cooling

TC: total capacity
SHC: sensible capacity

							Indoo	r tempe	erature	(°c,WB)					
Unit	Outdoor	1	4	1	.6	1	.8	1	.9	2	20	2	2	2	:4
size	temperature (°c,DB)	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	10	5.3	4.7	6.1	5.1	6.9	5.4	7.3	5.6	7.7	5.8	8.5	6.0	9.3	6.2
	12	5.3	4.7	6.1	5.1	6.9	5.4	7.3	5.6	7.7	5.8	8.5	6.0	9.3	6.2
	14	5.3	4.7	6.1	5.1	6.9	5.4	7.3	5.6	7.7	5.8	8.5	6.0	9.3	6.2
	16	5.3	4.7	6.1	5.1	6.9	5.4	7.3	5.6	7.7	5.8	8.5	6.0	9.3	6.2
	18	5.3	4.7	6.1	5.1	6.9	5.4	7.3	5.6	7.7	5.8	8.5	6.0	9.3	6.2
	20	5.3	4.7	6.1	5.1	6.9	5.4	7.3	5.6	7.7	5.8	8.5	6.0	9.3	6.2
	21	5.3	4.7	6.1	5.1	6.9	5.4	7.3	5.6	7.7	5.8	8.5	6.0	9.3	6.2
7.1	23	5.3	4.7	6.1	5.1	6.9	5.4	7.3	5.6	7.7	5.8	8.5	6.0	9.3	6.2
/.1	25	5.3	4.7	6.1	5.1	6.9	5.4	7.3	5.6	7.7	5.8	8.5	6.0	9.3	6.2
	27	5.3	4.7	6.1	5.1	6.9	5.4	7.3	5.6	7.7	5.8	8.5	6.0	9.3	6.2
	29	5.3	4.7	6.1	5.1	6.9	5.4	7.3	5.6	7.7	5.8	8.5	6.0	9.3	6.2
	31	5.2	4.6	6.0	5.0	6.8	5.3	7.2	5.5	7.6	5.7	8.4	5.9	9.2	6.1
	33	5.2	4.6	6.0	5.0	6.8	5.3	7.2	5.5	7.6	5.7	8.4	5.9	9.2	6.1
	35	5.2	4.6	6.0	5.0	6.8	5.3	7.1	5.5	7.6	5.7	8.4	5.9	9.2	6.1
	37	5.2	4.6	6.0	5.0	6.8	5.3	7.1	5.5	7.6	5.7	8.4	5.9	9.2	6.1
	39	5.2	4.6	6.0	5.0	6.8	5.3	7.1	5.5	7.6	5.7	8.4	5.9	9.2	6.1
	10	5.8	5.4	6.8	5.8	7.8	6.0	8.4	6.2	9.0	6.4	10.0	6.6	11.0	6.8
	12	5.8	5.4	6.8	5.8	7.8	6.0	8.4	6.2	9.0	6.4	10.0	6.6	11.0	6.8
	14	5.8	5.4	6.8	5.8	7.8	6.0	8.4	6.2	9.0	6.4	10.0	6.6	11.0	6.8
	16	5.8	5.4	6.8	5.8	7.8	6.0	8.4	6.2	9.0	6.4	10.0	6.6	11.0	6.8
	18	5.8	5.4	6.8	5.8	7.8	6.0	8.4	6.2	9.0	6.4	10.0	6.6	11.0	6.8
	20	5.8	5.4	6.8	5.8	7.8	6.0	8.4	6.2	9.0	6.4	10.0	6.6	11.0	6.8
	21	5.8	5.4	6.8	5.8	7.8	6.0	8.4	6.2	9.0	6.4	10.0	6.6	11.0	6.8
8.0	23	5.8	5.4	6.8	5.8	7.8	6.0	8.4	6.2	9.0	6.4	10.0	6.6	11.0	6.8
0.0	25	5.8	5.4	6.8	5.8	7.8	6.0	8.4	6.2	9.0	6.4	10.0	6.6	11.0	6.8
	27	5.8	5.4	6.8	5.8	7.8	6.0	8.4	6.2	9.0	6.4	10.0	6.6	11.0	6.8
	29	5.8	5.4	6.8	5.8	7.8	6.0	8.4	6.2	9.0	6.4	10.0	6.6	11.0	6.8
	31	5.8	5.4	6.8	5.8	7.8	6.0	8.4	6.2	9.0	6.4	10.0	6.6	11.0	6.8
	33	5.7	5.3	6.7	5.7	7.7	5.9	8.2	6.0	8.8	6.2	9.8	6.4	10.8	6.6
	35	5.7	5.3	6.7	5.7	7.7	5.9	8.0	6.0	8.8	6.2	9.8	6.4	10.8	6.6
	37	5.7	5.3	6.7	5.7	7.7	5.9	8.0	6.0	8.8	6.2	9.8	6.4	10.8	6.6
	39	5.7	5.3	6.7	5.7	7.7	5.9	8.0	6.0	8.8	6.2	9.8	6.4	10.8	6.6



3.4.3- CAPACITY TABLE

(2) Heating

TC: total capacity

	Out	door			Indoor tempe	erature (°C)DB		
	tempe	erature	14	16	18	20	22	24
Unit size			TC	TC	TC	TC	TC	TC
	DB	WB	kW	kW	kW	kW	KW	Kw
	-15.0	-15.8	2.0	2.0	1.9	1.9	1.8	1.8
	-14.0	-14.8	2.0	2.0	2.0	2.0	2.0	2.0
	-12.0	-12.8	2.2	2.2	2.2	2.1	2.1	2.1
	-10.0	-10.8	2.4	2.4	2.4	2.2	2.2	2.2
	-8.0	8.8	2.6	2.6	2.6	2.3	2.3	2.3
	-6.0	-7.0	2.8	2.8	2.8	2.4	2.4	2.4
	-4.0	-5.0	3.0	3.0	3.0	2.6	2.6	2.6
2.8	-2.0	-3.0	3.2	3.2	3.2	2.8	2.8	2.8
2.0	0.0	-1.0	3.5	3.5	3.4	3.0	3.0	3.0
	3.0	2.0	3.6	3.5	3.4	3.2	3.0	2.8
	5.0	4.0	3.6	3.5	3.4	3.2	3.0	2.8
	7.0	6.0	3.6	3.5	3.4	3.2	3.0	2.8
	9.0	8.0	3.6	3.5	3.4	3.2	3.0	2.8
	11	10.0	3.6	3.5	3.4	3.2	3.0	2.8
	13	12.0	3.6	3.5	3.4	3.2	3.0	2.8
	15	14.0	3.6	3.5	3.4	3.2	3.0	2.8
	-15.0	-15.8	2.6	2.6	2.6	2.6	2.5	2.4
	-14.0	-14.8	2.6	2.6	2.6	2.6	2.6	2.6
	-12.0	-12.8	2.8	2.8	2.8	2.7	2.7	2.7
	-10.0	-10.8	3.0	3.0	3.0	2.7	2.7	2.7
	-8.0	8.8	3.2	3.2	3.2	2.8	2.8	2.8
	-6.0	-7.0	3.4	3.4	3.4	3.0	3.0	3.0
	-4.0	-5.0	3.6	3.6	3.6	3.2	3.2	3.2
3.6	-2.0	-3.0	4.0	4.0	3.7	3.4	3.4	3.4
3.0	0.0	-1.0	4.2	4.2	3.9	3.6	3.6	3.6
	3.0	2.0	4.4	4.4	4.1	3.8	3.8	3.8
	5.0	4.0	4.6	4.6	4.3	4.0	3.7	3.4
	7.0	6.0	4.6	4.6	4.3	4.0	3.7	3.4
	9.0	8.0	4.6	4.6	4.3	4.0	3.7	3.4
	11	10.0	4.6	4.6	4.3	4.0	3.7	3.4
	13	12.0	4.6	4.6	4.3	4.0	3.7	3.4
	15	14.0	4.6	4.6	4.3	4.0	3.7	3.4

3.4.3- CAPACITY TABLE

(2) Heating

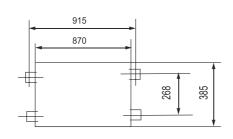
TC: total capacity

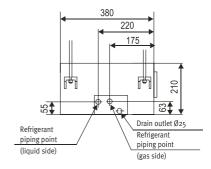
	Out	door			Indoor tempe	erature (°C)DB		
	tempe	erature	14	16	18	20	22	24
Unit size			TC	TC	TC	TC	TC	TC
	DB	WB	kW	kW	kW	kW	KW	Kw
	-15.0	-15.8	5.2	5.2	5.0	5.0	4.8	4.8
	-14.0	-14.8	5.3	5.3	5.4	5-3	5.0	4.8
	-12.0	-12.8	5.5	5.5	5.5	5.5	5.3	5.0
	-10.0	-10.8	5.7	5.7	5.7	5.7	5.6	5.0
	-8.0	8.8	5.9	5.9	5.9	5.9	5.9	5.3
	-6.0	-7.0	6.2	6.2	6.2	6.2	6.2	5.6
	-4.0	-5.0	6.5	6.5	6.5	6.5	6.5	5.9
	-2.0	-3.0	6.8	6.8	6.8	6.8	6.8	6.2
7.1	0.0	-1.0	7.1	7.1	7.1	7.0	7.0	6.5
	3.0	2.0	7.4	7.4	7.4	7.4	7.1	6.8
	5.0	4.0	7.7	7.7	7.7	7.7	7.4	6.8
	7.0	6.0	8.0	8.0	8.0	8.0	7.4	6.8
	9.0	8.0	8.3	8.3	8.3	8.0	7.4	6.8
	11	10.0	8.6	8.6	8.6	8.0	7.4	6.8
	13	12.0	8.6	8.6	8.6	8.0	7.4	6.8
	15	14.0	8.6	8.6	8.6	8.0	7.4	6.8
	-15.0	-15.8	6.3	6.3	6.2	6.2	6.1	6.0
	-14.0	-14.8	6.4	6.4	6.3	6.3	6.3	6.3
	-12.0	-12.8	6.6	6.6	6.5	6.5	6.5	6.5
	-10.0	-10.8	6.8	6.8	6.7	6.7	6.7	6.7
	-8.0	8.8	7.0	7.0	6.9	6.9	6.9	6.9
	-6.0	-7.0	7.2	7.2	7.1	7.1	7.1	7.1
	-4.0	-5.0	7.5	7.5	7.4	7.4	7.4	7.4
8.0	-2.0	-3.0	7.8	7.8	7.7	7.7	7.7	7.7
0.0	0.0	-1.0	8.1	8.1	7.8	7.8	7.8	7.8
	3.0	2.0	8.4	8.4	7.9	7.9	7.9	7.8
	5.0	4.0	8.7	8.7	8.1	8.1	8.1	7.8
	7.0	6.0	9.0	9.0	8.4	8.4	8.4	7.8
	9.0	8.0	9.3	9.3	8.7	8.7	8.4	7.8
	11	10.0	9.6	9.6	9.0	9.0	8.4	7.8
	13	12.0	9.9	9.9	9.3	9.0	8.4	7.8
	15	14.0	10.2	10.2	9.6	9.0	8.4	7.8

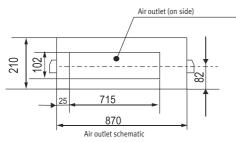


3.4.4- DIMENSION

(1) 10-025/035MCDHDI



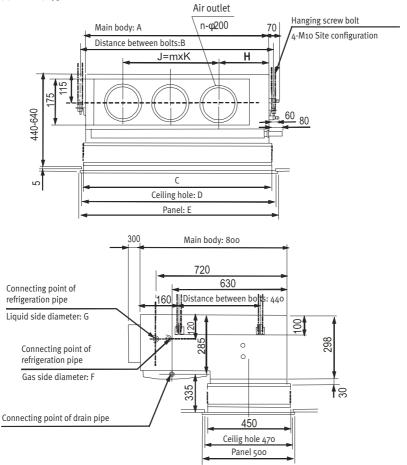




Name	Unit	Diameter		
Drain hole	mm	25		
Liquid side	inches	1/4		
Gas side	inches	1/2		

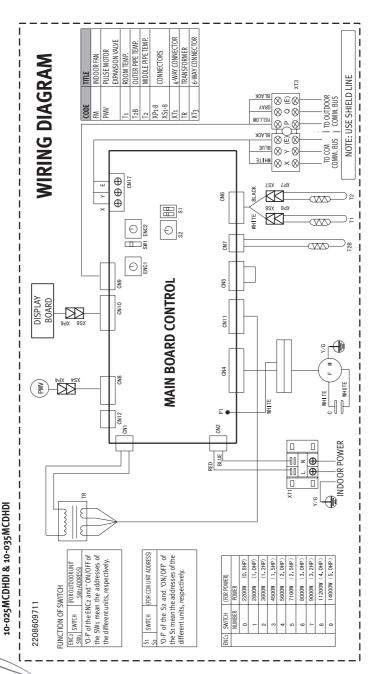
3.4.4- DIMENSION

(2) 10-060/075MCDHDI



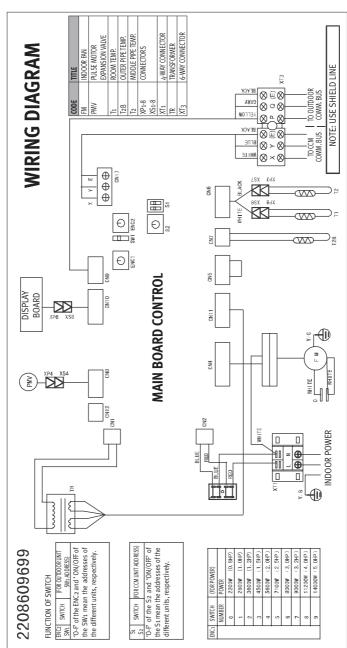
Model	Α	В	С	D	E	F	G	Н	J	K	m
10-060MCDHDI					1080	-/0	- /0		-00		_
10-075MCDHDI	1000	1050	1030	1050	1080	5/8	3/8	252	580	290	2

3.4.5- WIRING DIAGRAM



3.4.5- WIRING DIAGRAM

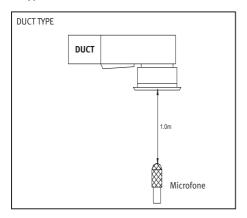
10-060MCDHDI & 10-075MCDHDI





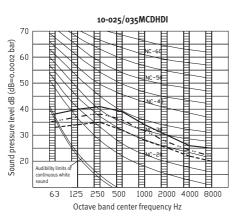
3.4.6- NOISE LEVEL

(1) Test condition

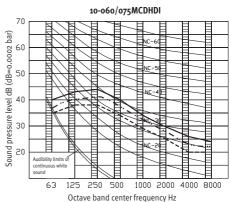


Model	220V-240V 50HZ						
Model	Н	М	L				
10-025MCDHDI 10-035MCDHDI	44	39	35				
10-060MCDHDI 10-075MCDHDI	49	45	42				

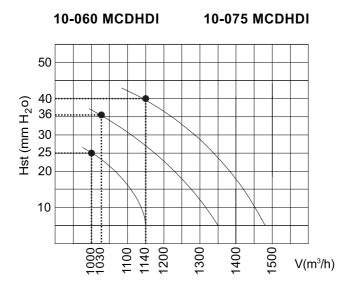
(2) Noise spectrums







3.4.7- FAN CURVES



3.4.8- FUNCTION PARTS SAFETY DEVICE

Model MCD		10-025MCDHDI 10-035MCDHDI	10-060MCDHDI 10-075MCDHDI
Cafata davida	PC board fuse	5A	5A
Safety device	Fan motor thermal protector	BW130	BW130
Functional device	Electronic throttle kit	DZJLBJ05	DZJLBJ07

3.4.9- OPTIONAL ACCESSORIES

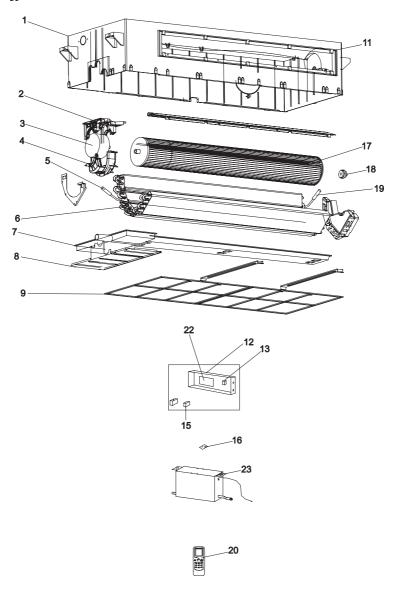
Number	Item
1	Wired controller
2	Central controller
3	Network controller *

^{*} This accessory is not available yet



3.4.10- EXPLODED VIEW PARTS

(1) 10-035 MCDHDI



3.4.10- EXPLODED VIEW PARTS

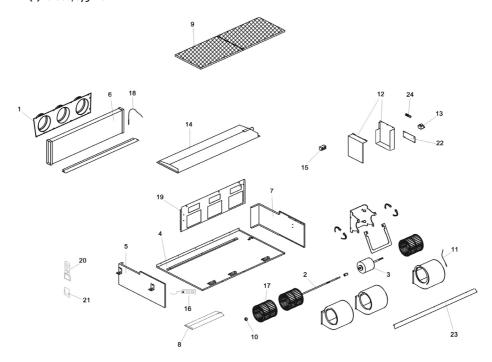
(1) 10-035 MCDHDI

Description	Model	Number
UNIT S CASING	10-035 MCDHDI	1
FAN MOTOR SUPPORT	10-035 MCDHDI	2
FAN MOTOR	10-035 MCDHDI	3
MOTOR S COVER	10-035 MCDHDI	4
COIL SENSOR	10-035 MCDHDI	5
COIL	10-035 MCDHDI	6
WATER COLLECTOR	10-035 MCDHDI	8
AIR FILTER	10-035 MCDHDI	9
TEMPERATURE SENSOR	10-035 MCDHDI	11
TRANSFORMER	10-035 MCDHDI	13
CONDENSER	10-035 MCDHDI	15
DISPLAY	10-035 MCDHDI	16
TANGENTIAL FAN	10-035 MCDHDI	17
FAN SHAFT UNION	10-035 MCDHDI	18
PIPE SENSOR	10-035 MCDHDI	19
REMOTE CONTROL	10-035 MCDHDI	20
REMOTE CONTROL SUPPORT	10-035 MCDHDI	21
PCB	10-035 MCDHDI	22
ELECTRONIC EXPANSION VALVE	10-035 MCDHDI	23



3.4.10- EXPLODED VIEW PARTS

(2) 10-060/075 MCDHDI



3.4.10- EXPLODED VIEW PARTS

(2) 10-060 MCDHDI

Description	Model	Number
FAN AXIS	10-060 MCDHDI	2
FAN MOTOR	10-060 MCDHDI	3
UNIT S BASE	10-060 MCDHDI	4
LEFT SIDE COVER	10-060 MCDHDI	5
COIL	10-060 MCDHDI	6
RIGHT SIDE COVER	10-060 MCDHDI	7
WATER TRAP	10-060 MCDHDI	8
FAN SHAFT UNION	10-060 MCDHDI	10
TEMPERATURE SENSOR	10-060 MCDHDI	11
ELECTRONIC BOX	10-060 MCDHDI	12
TRANSFORMER	10-060 MCDHDI	13
COIL BASE	10-060 MCDHDI	14
CONDENSER	10-060 MCDHDI	15
DISPLAY	10-060 MCDHDI	16
FAN	10-060 MCDHDI	17
PIPE SENSOR	10-060 MCDHDI	18
INNER COVER	10-060 MCDHDI	19
REMOTE CONTROL	10-060 MCDHDI	20
REMOTE CONTROL SUPPORT	10-060 MCDHDI	21
PCB	10-060 MCDHDI	22
REAR COVER	10-060 MCDHDI	23
TERMINAL BLOCK	10-060 MCDHDI	24
ELECTRONIC EXPANSION VALVE	10-060 MCDHDI	25

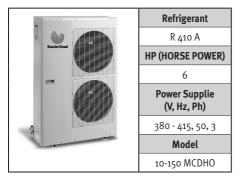


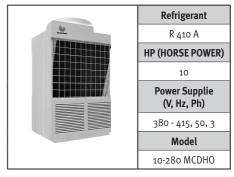
3.4.10- EXPLODED VIEW PARTS

(2) 10-075 MCDHDI

Description	Model	Number
FAN AXIS	10-075 MCDHDI	2
FAN MOTOR	10-075 MCDHDI	3
UNIT S BASE	10-075 MCDHDI	4
LEFT SIDE COVER	10-075 MCDHDI	5
COIL	10-075 MCDHDI	6
RIGHT SIDE COVER	10-075 MCDHDI	7
WATER TRAP	10-075 MCDHDI	8
FAN SHAFT UNION	10-075 MCDHDI	10
TEMPERATURE SENSOR	10-075 MCDHDI	11
ELECTRONIC BOX	10-075 MCDHDI	12
TRANSFORMER	10-075 MCDHDI	13
COIL BASE	10-075 MCDHDI	14
CONDENSER	10-075 MCDHDI	15
DISPLAY	10-075 MCDHDI	16
FAN	10-075 MCDHDI	17
PIPE SENSOR	10-075 MCDHDI	18
INNER COVER	10-075 MCDHDI	19
REMOTE CONTROL	10-075 MCDHDI	20
REMOTE CONTROL SUPPORT	10-075 MCDHDI	21
PCB	10-075 MCDHDI	22
REAR COVER	10-075 MCDHDI	23
TERMINAL BLOCK	10-075 MCDHDI	24
ELECTRONIC EXPANSION VALVE	10-075 MCDHDI	25

4.1- INTRODUCTION





4.2- UNIT SELECTION (WITH COOLING LOAD)

4.2.1 INDOOR UNIT SELECTION

- **1.** After calculated the heat load of rooms according to the local weather parameter and area, cubage, structure of rooms, selecting the nearest load capacity indoor units with given load.
- **2.** Selecting the proper indoor units should include the type of indoor units (Such as the four way cassette, duct and so on).
- **3.** Pay attention to the requirements of customers and local corresponding design standards.

CAUTION: The described capacity may be different from each indoor unit according to combination. So the real capacity should be calculated with outdoor unit capacity table.

4.2.2 OUTDOOR UNIT SELECTION

The allowable combination is described on the indoor combination total capacity index table. For the standard of the indoor unit and outdoor unit combination, select the nearest value that the total indoor unit capacity index is less than 130% outdoor unit capacity index.

Indoor unit combination total capacity index (KW)

Outdoor Unit	Indoor Unit Conbination											
Outdoor offic	130%	100%	90%	80%	70%	60%	50%					
10-150 MCDHO	18.2	14	12.6	11.2	9.8	8.4	7.0					
10-280 MCDHO	36.4	28	25.2	22.4	19.6	16.8	14.0					

Indoor unit capacity index (KW)

Unit size	22	28	36	45	56	71	80	90	112	140	280
Capacity index	2.2	2.8	3.6	4.5	5.6	7.1	8.0	9.0	11.2	14.0	28.0



4.2.3 REAL FUNCTION DATA

 Select the exact table according to outdoor unit model and combination rate using outdoor unit capacity table. According to given indoor and outdoor temperature, find outdoor unit capacity and power input using the table. Each indoor unit capacity (Power input) is calculated as follows.

IUC=OUC × INX/TNX

IUC: Each indoor unit capacity
OUC: Outdoors unit capacity

INX: Each indoor unit capacity index

TNX: Total capacity index

2. According to different pipe lengths and height difference, the indoor unit capacity will change accordingly. If the changed capacity is smaller than load, replace it with a larger capacity indoor unit and repeat the selecting progress.

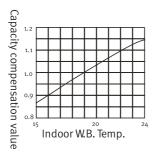
4.2.4 VARIATION IN CAPACITY IN ACCORDANCE WITH THE LENGTH OF REFRIGERANT PIPING

1. Cooling capacity modification

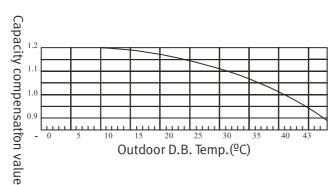
Effectual cooling capacity=Rated cooling capacity × Modification coefficient

$$(1 \times 2 \times 3 \times 4)$$

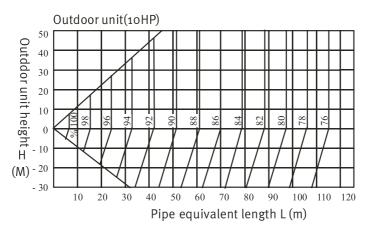
① Modification coefficient of indoor W.B. temperature

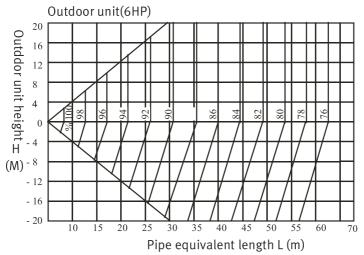


2 Modification coefficient of outdoor D.B. temperature

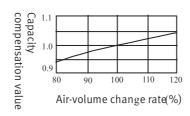


3 Modification coefficient of the length and high difference of refrigerant pipe





Modification coefficient of indoor air-volume changing rate



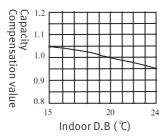


2. Heating capacity modification

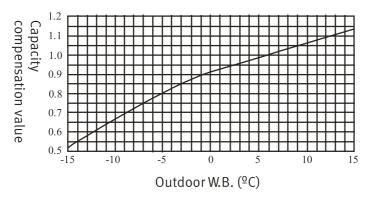
Effectual heating capacity=Rated heating capacity × Modification coefficient

$$(1) \times (2) \times (3) \times (4)$$

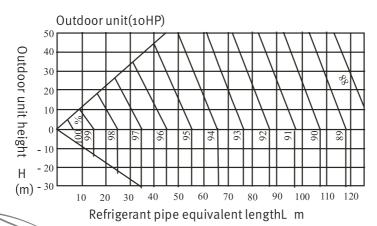
① Modification coefficient of indoor W.B. temperature



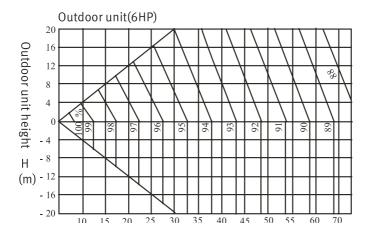
2 Modification coefficient of outdoor D.B. temperature



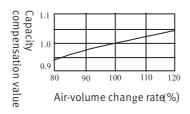
3 Modification coefficient of the length and high difference of refrigerant pipe



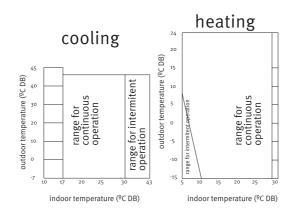
60



4 Modification coefficient of indoor air-volume changing rate



4.2.5 TEMPERATURE RANGE OPERATION



Notes: These figures assume the following operation conditions (Indoor and outdoor units):

- 1. Equivalent pipe length: 10m
- 2. Height difference:om



4.2.6 EXAMPLE FOR UNIT SELECTION WITH COOLING LOAD

1. Given condition

[1] Design condition (Cooling: Indoor 20°C (WB), Outdoor 35°C (DB))

[2] Cooling load

Location	Room A	Room B	Room C	Room D	Room E	Room F
Load (Kw)	2.1	2.8	3.5	4.6	5.8	7.2

[3] Power supply unit: 3 Phase 38oV 50Hz

[4] Pipe length: 50m

[5] Height difference: 30m

2. Indoor unit selection

Select the suitable capacity for condition of 'Indoor 20°C (WB), Outdoor 35°C (DB)' using indoor unit capacity table. The selected result is as follows. (Assuming the indoor unit type is duct)

Location	Room A	Room B	Room C	Room D	Room E	Room F
Load (Kw)	2.7	2.8	3.5	4.6	5.8	7.2
Unit size	28	28	36	45	56	71
Capacity (Kw)	3.1	3.1	3.9	4.9	6.0	7.6

3. Outdoor unit selection

[1] Assume the indoor unit and outdoor unit combination as follows Outdoor unit:

10-280 MCDHO

Indoor unit:

10-025 MCDHWI x 1, 10-025 MCDHDI x 1, 10-035 MCDHDI x 1, 10-050 MCDHWI x 1, 10-060 MCDHKI x 1, 10-060 MCDHDI x 1,

Indoor unit combination total capacity index

$$28 \times 1 + 28 \times 1 + 36 \times 1 + 45 \times 1 + 56 \times 1 + 71 \times 1 = 261(261/280) \times 100\% = 93,2\%$$

- [2] Result: Because it is within 50-130%, it is a "Right" selection.
- [3] Real function data with indoor unit combination
 - For the 93,2% combination, calculate the cooling capacity of outdoor unit (MDV-D28oW/ SN2).

26.41KW -90% (Indoor temperature : WB 20°C, Outdoor temperature: DB 35°C)

29.33KW 100%(Indoor temperature : WB 20°C, Outdoor temperature: DB 35°C)

Then calculated the outdoor capacity in 93,2% combination index:

Therefore: $26.41 + \{(29.33 - 26.41)/10\} \times 2 = 27.00$;

- b. Outdoor unit (10-280 MCDHO) cooling temperature: DB 35°C)
- c. Capacity change factor with pipe length (50m) and height difference (30m): 0.905
- d. Each cooling capacity

10-025 MCDHWI: 27.00 × 28/258 × 0.905 = 2.65 (KW)

10-025 MCDHDI: 27.00 × 28/258 × 0.905 = 2.65 (KW)

10-035 MCDHDI: 27.00 × 36/258 × 0.905 = 3.41 (KW)

10-050 MCDHWI: 27.00 × 45/258 × 0.905 = 4.26 (KW)

10-060 MCDHKI: 27.00 × 56/258 ×0.905= 5.30 (KW)

10-060 MCDHDI: 27.00 × 71/258 × 0.905 = 6.70 (KW)

Location	Room A	Room B	Room C	Room D	Room E	Room F
Load (Kw)	2.1	2.8	3.5	4.6	5.8	7.2
Unit size	22	28	36	45	56	71
Capacity (Kw)	2.65	2.65	3.41	4.26	5.30	6.70

[4] Conclusion: Generally, we think this result is acceptable, so we can think we have accomplished the calculation. But if you think this result is not acceptable, you can repeat the over process.

Remark: In this samples, we don't consider the other capacity modification index and assume them is 1.



4.3- ESPECIFICATIONS

Model			10-150 MCDHO	10-280 MCDHO		
Power supply		Ph-V-Hz	3N~, 38oV, 50Hz	3N~, 38oV, 50Hz		
	Cooling (*1)	KW	29.5	14.2		
Capacity	Input	KW	10.5	5.02		
	Heating (*2)	KW	33.84	16.3		
	Input	KW	10.5	5.01		
	Model		ZPD70KCE-TFD-432 /ZP68KCE-TFD-422	ZPD7oKCE-TFDN-532		
	Туре		Digital scroll	Digital scroll		
	Brand		COPELAND	COPELAND		
Compressor	Capacity	KW	32.2	14		
	Rated current (RLA)	А	19.5	8.5		
	Thermal protector		Inner	Inner		
	Refrigerant oil	ml	3600	1800		
	Model		YDK400-8	YDK65-6WL		
	Input (H/L)	w	700/450	138*2		
Outdoor fan motor	Capacitor	uF	10	3.5*2		
	Speed	r/min	670/450	800		
	a. Number of rows		2.5	2		
	b. Tube pitch(a)x row pitch(b)	mm	25.4X22	25.4X22		
	c. Fin spacing	mm	1.8	1.8		
Outdoor coil	d. Fin type (code)		HYDROPHILIC ALUMINIUM	HYDROPHILIC ALUMINIUM		
	e. Tube outside dia.and type	mm	Ø 9.53 INNERGROoVE TUBE	Ø 9.53 INNERGROOVE TUBE		
	f. Coil length x height x width	mm	870*980*60	715*1220*44		
	g. Number of circuits		10*2	8		
Outdoor air flow		m3/h	10000	6000		
Outdoor noise level (*	[3)	dB(A)	70	66		
	Dimension (W*H*D)	mm	997*1830*880	940*1245*340		
Outdoor unit	Packing (W*H*D)	mm	1105*2020*1034	1020*1377*434		
	Net/Gross weight	Kg	245/260	110/125		
Refrigerant type R410	4	Kg	12.5	4.2		
Design pressure	Low/High	MPa	2.0/4.2	2.0/4.2		
	Liquid side / Gas side	inches	1/2-1 1/8	3/8-3/4		
	Max. Pipe length	m	175	70		
Refrigerant piping	Max. Height IU under OU	m	50	20		
	Max. Height OU under IU	m	30	20		
	Chargeless length	m	0	0		
Qty per 20'/40'/40'H	Q Pieces		10/20/20	30/61/62		

4.4- CAPACITY TABLE

(1) Cooling: 10-150 MCDHO

	Indoor Temperature (°C, DB)														
Conbination % (capacity	outdoor	1	4	1	6	1	8	1	9	2	0	2	2	2	24
index)	temperature (ºC DB)	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	10,00	9,65	1,85	11,40	2,19	13,15	2,53	14,00	2,70	14,85	2,87	16,60	3,22	18,25	3,56
	12,00	9,65	1,89	11,40	2,23	13,15	2,57	14,00	2,74	14,85	2,92	16,60	3,27	18,05	3,57
	14,00	9,65	1,92	11,40	2,26	13,15	2,61	14,00	2,79	14,85	2,97	16,60	3,33	17,80	3,61
	16,00	9,65	1,94	11,40	2,30	13,15	2,66	14,00	2,84	14,85	3,02	16,26	3,39	17,55	3,69
	18,00	9,65	1,97	11,40	2,34	13,15	2,70	14,00	2,88	14,85	3,07	16,22	3,58	17,35	3,75
	20,00	9,65	2,01	11,40	2,38	13,15	2,80	14,00	3,04	14,85	3,30	16,12	3,85	17,10	4,01
	21,00	9,65	2,03	11,40	2,41	13,15	2,90	14,00	3,15	14,85	3,41	15,91	3,98	17,00	4,10
	23,00	9,65	2,10	11,40	2,58	13,15	3,10	14,00	3,37	14,85	3,66	15,66	4,21	16,75	4,36
	25,00	9,65	2,24	11,40	2,75	13,15	3,32	14,00	3,61	14,85	3,91	15,41	4,40	16,55	4,56
100	27,00	9,65	2,39	11,40	2,94	13,15	3,54	14,00	3,85	14,85	4,19	14,91	4,60	16,30	4,73
	29,00	9,65	2,55	11,40	3,13	13,15	3,78	14,00	4,11	14,80	4,47	14,87	4,79	16,05	4,90
	31,00	9,65	2,71	11,40	3,33	13,15	4,03	14,00	4,38	14,65	4,77	14,78	4,98	15,85	5,11
	33,00	9,65	2,87	11,40	3,54	13,15	4,29	14,00	4,67	14,40	5,08	14,53	5,20	15,60	5,29
	35,00	9,65	3,05	11,40	3,77	13,15	4,56	14,00	4,92	14,15	5,32	14,37	5,48	15,40	5,67
	37,00	9,65	3,23	11,40	4,00	13,15	4,85	13,75	5,27	13,95	5,54	14,24	5,70	15,15	5,86
	39,00	9,65	3,43	11,40	4,25	13,15	5,16	13,50	5,41	13,80	5,75	14,09	5,90	14,90	5,95
	42,00	9,65	3,49	11,40	4,36	13,15	5,29	13,35	5,55	13,65	5,75	13,97	5,92	14,50	6,02
	44,00	9,65	3,56	11,40	4,43	13,15	5,51	13,30	5,60	13,50	5,82	13,67	5,97	14,30	6,27
	46,00	9,65	3,70	11,40	4,50	13,15	5,58	13,26	5,73	13,39	5,89	13,37	5,99	13,70	6,45
	10,00	8,69	1,66	10,26	1,95	11,84	2,24	12,60	2,39	13,37	2,54	14,94	2,85	15,87	3,42
	12,00	8,69	1,68	10,26	1,98	11,84	2,28	12,60	2,43	13,37	2,59	14,94	2,90	15,87	3,53
	14,00	8,69	1,71	10,26	2,01	11,84	2,32	12,60	2,47	13,37	2,63	14,94	2,95	15,87	3,66
	16,00	8,69	1,74	10,26	2,04	11,84	2,36	12,60	2,52	13,37	2,67	14,94	3,02	15,80	3,73
	18,00	8,69	1,79	10,26	2,07	11,84	2,39	12,60	2,56	13,37	2,71	14,94	3,15	15,62	3,73
	20,00	8,69	1,80	10,26	2,11	11,84	2,45	12,60	2,62	13,37	2,83	14,94	3,47	15,39	3,98
	21,00	8,69	1,81	10,26	2,14	11,84	2,50	12,60	2,70	13,37	2,93	14,94	3,63	15,30	4,07
	23,00	8,69	1,86	10,26	2,23	11,84	2,67	12,60	2,90	13,37	3,14	14,81	3,78	15,08	4,32
	25,00	8,69	1,96	10,26	2,39	11,84	2,85	12,60	3,09	13,37	3,34	14,58	4,06	14,90	4,52
90	27,00	8,69	2,09	10,26	2,54	11,84	3,05	12,60	3,31	13,37	3,58	14,81	4,36	14,67	4,70
	29,00	8,69	2,23	10,26	2,71	11,84	3,24	12,60	3,52	13,37	3,84	14,81	4,58	14,96	4,86
	31,00	8,69	2,36	10,26	2,88	11,84	3,46	12,60	3,75	13,37	4,21	14,58	4,77	14,84	5,06
	33,00	8,69	2,50	10,26	3,06	11,84	3,68	12,60	3,99	13,37	4,61	14,40	4,97	14,56	5,24
	35,00	8,69	2,66	10,26	3,25	11,84	3,91	12,60	4,20	13,37	4,97	14,18	5,25	14,49	5,61
	37,00	8,69	2,81	10,26	3,45	11,84	4,15	12,60	4,64	13,37	5,32	13,95	5,48	14,18	5,80
	39,00	8,69	2,98	10,26	3,65	11,84	4,41	12,60	4,89	13,37	5,69	13,66	5,81	14,06	5,90
	42,00	8,69	3,12	10,26	3,84	11,84	4,48	12,60	4,98	13,37	5,67	13,84	5,84	13,98	5,88
	44,00	8,69	3,27	10,26	3,92	11,84	4,73	12,60	5,05	13,37	5,75	13,76	5,92	13,93	6,19
	46,00	8,69	3,55	10,26	4,20	11,84	4,82	12,60	5,19	13,37	5,76	13,65	5,88	13,83	6,35



4.4- CAPACITY TABLE

(1) Cooling: 10-150 MCDHO

							Indoor	Tempe	rature (ºC, DB)					
Conbination		1	4	1	6	1	8	1	9	2	0	2	2	2	4
% (capacity index)	temperature (°C DB)	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl
macky	(000)	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	10,00	7,72	1,47	9,12	1,72	10,52	1,97	11,20	2,09	11,88	2,22	13,28	2,49	14,24	2,99
	12,00	7,72	1,50	9,12	1,80	10,52	2,00	11,20	2,12	11,88	2,26	13,28	2,52	14,24	3,08
	14,00	7,72	1,52	9,12	1,77	10,52	2,03	11,20	2,16	11,88	2,30	13,28	2,57	14,24	3,19
	16,00	7,72	1,54	9,12	1,80	10,52	2,07	11,20	2,20	11,88	2,33	13,28	2,64	14,24	3,27
	18,00	7,72	2,14	9,12	1,83	10,52	2,10	11,20	2,23	11,88	2,37	13,28	2,75	14,24	3,23
	20,00	7,72	1,59	9,12	1,85	10,52	2,14	11,20	2,28	11,88	2,43	13,28	2,92	14,24	3,51
	21,00	7,72	1,60	9,12	1,88	10,52	2,17	11,20	2,25	11,88	2,47	13,28	3,06	14,24	3,64
	23,00	7,72	1,64	9,12	1,92	10,52	2,27	11,20	2,46	11,88	2,65	13,28	3,17	14,24	3,96
	25,00	7,72	1,69	9,12	2,04	10,52	2,43	11,20	2,63	11,88	2,83	13,28	3,41	14,24	4,25
80	27,00	7,72	1,81	9,12	2,18	10,52	2,58	11,20	2,80	11,88	3,02	13,28	3,66	14,24	4,54
	29,00	7,72	1,92	9,12	2,32	10,52	2,75	11,20	2,98	11,88	3,24	13,28	3,92	14,24	4,82
	31,00	7,72	2,04	9,12	2,46	10,52	2,94	11,20	3,15	11,88	3,55	13,28	4,19	14,06	5,02
	33,00	7,72	2,15	9,12	2,61	10,52	3,11	11,20	3,37	11,88	3,88	13,28	4,49	13,93	5,20
	35,00	7,72	2,29	9,12	2,77	10,52	3,31	11,20	3,54	11,88	4,18	13,28	4,88	13,80	5,57
	37,00	7,72	2,42	9,12	2,94	10,52	3,51	11,20	3,91	11,88	4,47	13,28	5,24	13,70	5,75
	39,00	7,72	2,56	9,12	3,11	10,52	3,72	11,20	4,11	11,88	4,78	13,28	5,73	13,61	5,84
	42,00	7,72	2,60	9,12	3,24	10,52	3,90	11,20	4,28	11,88	4,71	13,28	5,78	13,50	5,85
	44,00	7,72	2,65	9,12	3,29	10,52	3,94	11,20	4,29	11,88	4,71	13,28	5,76	13,44	6,05
	46,00	7,72	2,86	9,12	3,42	10,52	4,10	11,20	4,39	11,88	4,69	13,28	5,73	13,36	6,22
	10,00	6,76	1,29	7,98	1,50	9,21	1,70	9,80	1,81	10,40	1,91	11,62	2,13	12,78	2,56
	12,00	6,76	1,32	7,98	1,52	9,21	1,73	9,80	1,83	10,40	1,95	11,62	2,17	12,78	2,64
	14,00	6,76	1,33	7,98	1,54	9,21	1,76	9,80	1,86	10,40	1,98	11,62	2,21	12,78	2,74
	16,00	6,76	1,35	7,98	1,57	9,21	1,79	9,80	1,90	10,40	2,01	11,62	2,26	12,78	2,80
	18,00	6,76	1,36	7,98	1,59	9,21	1,81	9,80	1,93	10,40	2,04	11,62	2,36	12,78	2,76
	20,00	6,76	1,39	7,98	1,61	9,21	1,85	9,80	1,96	10,40	2,08	11,62	2,46	12,78	2,89
	21,00	6,76	1,40	7,98	1,63	9,21	1,87	9,80	1,98	10,40	2,11	11,62	2,53	12,78	2,99
	23,00	6,76	1,43	7,98	1,67	9,21	1,91	9,80	2,05	10,40	2,21	11,62	2,63	12,78	3,25
	25,00	6,76	1,46	7,98	1,73	9,21	2,04	9,80	2,19	10,40	2,35	11,62	2,81	12,78	3,49
70	27,00	6,76	1,55	7,98	1,84	9,21	2,17	9,80	2,34	10,40	2,51	11,62	3,02	12,78	3,72
	29,00	6,76	1,65	7,98	1,96	9,21	2,30	9,80	2,48	10,40	2,69	11,62	3,23	12,78	3,95
	31,00	6,76	1,74	7,98	2,08	9,21	2,45	9,80	2,64	10,40	2,94	11,62	3,45	12,78	4,23
	33,00	6,76	1,84	7,98	2,20	9,21	2,60	9,80	2,80	10,40	3,21	11,62	3,70	12,78	4,49
	35,00	6,76	1,95	7,98	2,33	9,21	2,76	9,80	2,94	10,40	3,45	11,62	4,01	12,78	4,96
	37,00	6,76	2,06	7,98	2,47	9,21	2,92	9,80	3,24	10,40	3,69	11,62	4,30	12,78	5,26
	39,00	6,76	2,17	7,98	2,61	9,21	3,10	9,80	3,41	10,40	3,94	11,62	4,70	12,78	5,51
	42,00	6,76	2,26	7,98	2,74	9,21	3,22	9,80	3,57	10,40	3,97	11,62	4,74	12,78	5,49
	44,00	6,76	2,37	7,98	2,81	9,21	3,45	9,80	3,64	10,40	4,00	11,62	4,78	12,78	5,68
	46,00	6,76	2,53	7,98	3,00	9,21	3,46	9,80	3,75	10,40	4,05	11,62	4,78	12,78	5,84

4.4- CAPACITY TABLE

(1) Cooling: 10-150 MCDHO

							Indoor	Tempe	rature (^ç	C, DB)					
	outdoor	1	4	1	6	1	8	1	9	2	0	2	2	2	4
index)	temperature (ºC DB)	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	10,00	5,79	1,13	6,84	1,29	7,89	1,45	8,40	1,54	8,91	1,62	9,96	1,80	10,95	2,15
	12,00	5,79	1,14	6,84	1,31	7,89	1,48	8,40	1,56	8,91	1,65	9,96	1,83	10,95	2,21
	14,00	5,79	1,16	6,84	1,32	7,89	1,49	8,40	1,58	8,91	1,68	9,96	1,86	10,95	2,29
	16,00	5,79	1,17	6,84	1,34	7,89	1,52	8,40	1,61	8,91	1,69	9,96	1,90	10,95	2,35
	18,00	5,79	1,19	6,84	1,36	7,89	1,54	8,40	1,63	8,91	1,72	9,96	1,98	10,95	2,32
	20,00	5,79	1,20	6,84	1,38	7,89	1,57	8,40	1,66	8,91	1,76	9,96	2,07	10,95	2,41
% (capacity index)	21,00	5,79	1,21	6,84	1,40	7,89	1,59	8,40	1,68	8,91	1,78	9,96	2,11	10,95	2,43
	23,00	5,79	1,24	6,84	1,43	7,89	1,62	8,40	1,71	8,91	1,81	9,96	2,13	10,95	2,62
	25,00	5,79	1,26	6,84	1,45	7,89	1,68	8,40	1,80	8,91	1,92	9,96	2,28	10,95	2,81
60	27,00	5,79	1,31	6,84	1,54	7,89	1,79	8,40	1,91	8,91	2,05	9,96	2,44	10,95	2,99
	29,00	5,79	1,39	6,84	1,63	7,89	1,90	8,40	2,03	8,91	2,19	9,96	2,61	10,95	3,17
	31,00	5,79	1,47	6,84	1,73	7,89	2,01	8,40	2,15	8,91	2,39	9,96	2,79	10,95	3,39
	33,00	5,79	1,55	6,84	1,83	7,89	2,14	8,40	2,29	8,91	2,61	9,96	2,98	10,95	3,60
	35,00	5,79	1,64	6,84	1,93	7,89	2,26	8,40	2,40	8,91	2,80	9,96	3,23	10,95	3,96
	37,00	5,79	1,73	6,84	2,04	7,89	2,39	8,40	2,63	8,91	2,99	9,96	3,45	10,95	4,21
-	39,00	5,79	1,82	6,84	2,16	7,89	2,53	8,40	2,77	8,91	3,19	9,96	3,77	10,95	4,39
	42,00	5,79	1,86	6,84	2,33	7,89	2,73	8,40	2,91	8,91	3,22	9,96	3,81	10,95	4,43
	44,00	5,79	1,92	6,84	2,44	7,89	2,93	8,40	3,04	8,91	3,30	9,96	3,85	10,95	4,63
	46,00	5,79	2,08	6,84	2,51	7,89	2,99	8,40	3,19	8,91	3,42	9,96	3,86	10,95	4,81
	10,00	4,83	0,97	5,70	1,09	6,58	1,22	7,00	1,28	7,43	1,34	8,30	1,49	9,13	1,77
	12,00	4,83	0,98	5,70	1,10	6,58	1,23	7,00	1,30	7,43	1,37	8,30	1,51	9,13	1,81
	14,00	4,83	0,99	5,70	1,12	6,58	1,25	7,00	1,32	7,43	1,39	8,30	1,53	9,13	1,88
	16,00	4,83	1,00	5,70	1,13	6,58	1,27	7,00	1,33	7,43	1,40	8,30	1,57	9,13	1,92
	18,00	4,83	1,01	5,70	1,15	6,58	1,28	7,00	1,35	7,43	1,42	8,30	1,63	9,13	1,90
	20,00	4,83	1,02	5,70	1,16	6,58	1,31	7,00	1,38	7,43	1,45	8,30	1,70	9,13	1,96
	21,00	4,83	1,03	5,70	1,17	6,58	1,32	7,00	1,40	7,43	1,47	8,30	1,73	9,13	1,98
	23,00	4,83	1,06	5,70	1,20	6,58	1,34	7,00	1,42	7,43	1,50	8,30	1,72	9,13	2,06
	25,00	4,83	1,07	5,70	1,22	6,58	1,37	7,00	1,44	7,43	1,54	8,30	1,80	9,13	2,20
50	27,00	4,83	1,09	5,70	1,26	6,58	1,44	7,00	1,54	7,43	1,64	8,30	1,93	9,13	2,34
	29,00	4,83	1,16	5,70	1,33	6,58	1,53	7,00	1,63	7,43	1,74	8,30	2,06	9,13	2,48
	31,00	4,83	1,22	5,70	1,41	6,58	1,62	7,00	1,72	7,43	1,91	8,30	2,19	9,13	2,64
	33,00	4,83	1,28	5,70	1,49	6,58	1,72	7,00	1,83	7,43	2,06	8,30	2,34	9,13	2,81
	35,00	4,83	1,36	5,70	1,57	6,58	1,81	7,00	1,91	7,43	2,22	8,30	2,53	9,13	3,08
	37,00	4,83	1,43	5,70	1,66	6,58	1,91	7,00	2,10	7,43	2,37	8,30	2,70	9,13	3,26
	39,00	4,83	1,50	5,70	1,75	6,58	2,02	7,00	2,20	7,43	2,52	8,30	2,95	9,13	3,41
	42,00	4,83	1,58	5,70	1,92	6,58	2,14	7,00	2,32	7,43	2,54	8,30	3,01	9,13	3,45
	44,00	4,83	1,66	5,70	2,02	6,58	2,35	7,00	2,43	7,43	2,62	8,30	3,06	9,13	3,63
	46,00	4,83	1,77	5,70	2,06	6,58	2,40	7,00	2,59	7,43	2,79	8,30	3,18	9,13	3,79



4.4- CAPACITY TABLE

(2) Heating: 10-150 MCDHO

							Indoo	tempe	ature (º	C, DB)				
combination	outo tempe		1	6	1	8	2	0	2	1	2	2	24	
% (capacity index)			TC		TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl
	ºC DB	ºC DB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	-14,7	-15	10,36	4,12	10,36	4,23	10,31	4,33	10,31	4,42	10,31	4,52	10,26	4,62
	-12,6	-13	10,57	4,13	10,57	4,24	10,51	4,35	10,51	4,43	10,51	4,56	10,46	4,68
	-10,5	-11	10,68	4,13	10,68	4,25	10,61	4,37	10,61	4,46	10,61	4,58	10,59	4,71
	-9,5	-10	10,98	4,19	10,98	4,27	10,94	4,38	10,94	4,48	10,94	4,59	10,89	4,77
	-8,5	-9,1	11,27	4,26	11,27	4,29	11,25	4,41	11,25	4,50	11,25	4,62	11,20	4,79
	-7	-7,6	11,73	4,34	11,73	4,37	11,70	4,44	11,70	4,52	11,70	4,64	11,63	4,84
	-5	-5,6	12,36	4,45	12,36	4,48	12,32	4,50	12,32	4,56	12,32	4,73	12,32	4,85
100	-3	-3,7	12,95	4,55	12,95	4,58	12,90	4,59	12,90	4,60	12,90	4,77	12,85	4,88
100	0	-0,7	13,91	4,64	13,91	4,66	13,89	4,68	13,89	4,69	13,89	4,88	13,47	4,88
	3	2,2	14,79	4,78	14,79	4,81	14,76	4,82	14,76	4,95	14,71	4,81	13,47	4,55
	5	4,1	15,41	4,85	15,41	4,88	15,36	4,89	15,31	4,95	14,76	4,71	13,47	4,42
	7	6	16,05	4,92	16,00	4,98	16,00	4,90	15,31	4,89	14,76	4,60	13,47	4,31
	9	7,9	16,63	4,97	16,59	4,97	16,00	4,83	15,31	4,76	14,76	4,48	13,47	4,20
	11	9,8	17,21	5,03	17,16	4,89	16,00	4,67	15,31	4,60	14,76	4,33	13,47	4,05
	13	11,8	17,83	5,02	17,24	4,85	16,00	4,51	15,31	4,44	14,76	4,18	13,47	3,97
	15	13,7	18,38	5,01	17,24	4,74	16,00	4,45	15,31	4,31	14,76	4,21	13,47	3,90
	-14,7	-15	10,31	4,17	10,31	4,33	10,26	4,47	10,26	4,54	10,26	4,64	10,21	4,69
	-12,6	-13	10,51	4,14	10,51	4,29	10,46	4,34	10,46	4,42	10,46	4,56	10,41	4,67
	-10,5	-11	10,63	4,14	10,63	4,32	10,56	4,37	10,56	4,45	10,56	4,58	10,53	4,71
	-9,5	-10	10,93	4,20	10,93	4,26	10,89	4,38	10,89	4,49	10,89	4,58	10,84	4,76
	-8,5	-9,1	11,21	4,28	11,21	4,33	11,19	4,41	11,19	4,48	11,19	4,61	11,14	4,78
	-7	-7,6	11,67	4,35	11,67	4,37	11,64	4,43	11,64	4,51	11,64	4,63	11,38	4,76
	-5	-5,6	12,30	4,48	12,30	4,51	12,26	4,50	12,26	4,55	12,26	4,73	11,99	4,74
90	-3	-3,7	12,89	4,55	12,89	4,65	12,83	4,70	12,83	4,72	12,70	4,71	12,15	4,63
	0	-0,7	13,84	4,67	13,84	4,70	13,82	4,69	13,82	4,70	13,28	4,69	12,15	4,41
	3	2,2	14,72	4,78	14,72	4,80	13,82	4,68	13,78	4,64	13,28	4,48	12,15	4,11
	5	4,1	15,33	4,97	14,73	4,76	14,22	4,58	13,78	4,43	13,28	4,26	12,15	3,89
	7	6	16,56	5,07	15,54	4,74	14,40	4,38	13,78	4,19	13,28	4,02	12,15	3,95
	9	7,9	16,54	4,94	15,54	4,60	14,40	4,21	13,78	4,02	13,28	3,86	12,15	3,81
	11	9,8	16,54	4,75	15,54	4,42	14,40	4,08	13,78	3,90	13,28	3,75	12,15	3,42
	13	11,8	16,54	4,54	15,54	4,25	14,40	3,93	13,78	3,75	13,28	3,61	12,15	3,31
	15	13,7	16,54	4,50	15,54	4,22	14,40	3,90	13,78	3,72	13,28	3,58	12,15	3,27

4.4- CAPACITY TABLE

(2) Heating: 10-150 MCDHO

							Indooi	tempe	ature (º	C, DB)				
combination		door erature	1	6	1	8	2	0	2	1	2	2	24	
% (capacity index)	tempe	rature	TC		TC	Pl	TC	Pl	TC		TC	Pl	TC	Pl
	ºC DB	ºC DB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	-14,7	-15	10,26	4,17	10,26	4,32	10,21	4,46	10,21	4,53	10,21	4,64	10,16	4,69
	-12,6	-13	10,46	4,22	10,46	4,28	10,41	4,53	10,41	4,55	10,41	4,62	10,36	4,72
	-10,5	-11	10,58	4,21	10,58	4,31	10,66	4,62	10,50	4,57	10,50	4,72	10,41	4,71
	-9,5	-10	10,87	4,25	10,87	4,33	10,98	4,64	10,83	4,70	10,83	4,70	10,79	4,70
	-8,5	-9,1	11,15	4,30	11,15	4,39	11,27	4,66	11,13	4,79	10,82	4,66	10,79	4,66
	-7	-7,6	11,94	4,46	11,94	4,52	11,87	4,89	11,58	4,79	11,17	4,64	10,79	4,53
	-5	-5,6	12,24	4,48	12,24	4,62	12,24	4,79	12,19	4,77	11,82	4,62	10,79	4,28
80	-3	-3,7	12,82	4,68	12,44	4,56	12,80	4,73	12,27	4,55	11,82	4,40	10,79	4,14
	0	-0,7	13,77	4,66	13,26	4,47	12,80	4,31	12,27	4,11	11,82	3,95	10,79	3,60
	3	2,2	14,22	4,62	13,82	4,47	12,80	4,13	12,27	3,94	11,82	3,79	10,79	3,45
	5	4,1	14,72	4,62	13,82	4,32	12,80	3,99	12,27	3,82	11,82	3,67	10,79	3,34
	7	6	14,72	4,49	13,82	4,21	12,80	3,89	12,27	3,72	11,82	3,57	10,79	3,25
	9	7,9	14,72	4,39	13,82	4,08	12,80	3,73	12,27	3,57	11,82	3,43	10,79	3,12
	11	9,8	14,72	4,21	13,82	3,92	12,80	3,62	12,27	3,46	11,82	3,33	10,79	3,03
	13	11,8	14,72	4,03	13,82	3,77	12,80	3,48	12,27	3,33	11,82	3,20	10,79	2,92
	15	13,7	14,72	4,00	13,81	3,74	12,80	3,46	12,27	3,31	11,82	3,18	10,79	2,90
	-14,7	-15	10,21	4,16	10,21	4,31	10,16	4,46	10,16	4,53	10,16	4,63	9,40	4,65
	-12,6	-13	10,41	4,21	10,41	4,32	10,36	4,53	10,26	4,50	10,36	4,61	9,43	4,32
	-10,5	-11	10,52	4,22	10,52	4,35	10,41	4,52	10,31	4,49	10,21	4,60	9,43	4,28
	-9,5	-10	10,82	4,26	10,82	4,32	10,20	4,33	10,31	4,47	10,32	4,49	9,43	4,12
	-8,5	-9,1	10,92	4,29	10,92	4,32	11,24	4,42	10,71	4,20	10,32	4,46	9,43	4,09
	-7	-7,6	11,33	4,24	11,33	4,30	11,24	4,25	10,71	4,04	10,32	4,30	9,43	3,97
	-5	-5,6	11,94	4,39	11,33	4,29	11,24	4,24	10,71	4,02	10,32	4,05	9,43	3,75
70	-3	-3,7	12,88	4,37	12,10	4,09	11,24	3,79	10,71	3,60	10,32	3,46	9,43	3,15
,	0	-0,7	12,88	4,35	12,10	4,07	11,24	3,77	10,71	3,58	10,32	3,44	9,43	3,14
	3	2,2	12,88	4,17	12,10	3,91	11,24	3,61	10,71	3,43	10,32	3,30	9,43	3,01
	5	4,1	12,88	4,03	12,10	3,77	11,24	3,49	10,71	3,32	10,32	3,19	9,43	2,91
	7	6	12,88	3,92	12,10	3,67	11,24	3,40	10,71	3,23	10,32	3,11	9,43	2,83
	9	7,9	12,88	3,83	12,10	3,56	11,24	3,27	10,71	3,10	10,32	2,98	9,43	2,72
	11	9,8	12,88	3,68	12,10	3,42	11,24	3,17	10,71	3,01	10,32	2,90	9,43	2,64
	13	11,8	12,88	3,52	12,10	3,29	11,24	3,05	10,71	2,90	10,32	2,79	9,43	2,54
	15	13,7	12,88	3,49	12,10	3,27	11,24	3,03	10,71	2,88	10,32	2,77	9,43	2,52

4.4- CAPACITY TABLE

(2) Heating: 10-150 MCDHO

							Indoo	tempe	ature (º	C, DB)				
combination	outdoor temperature		1	6	1	8	2	0	2	1	2	2	24	
% (capacity index)	tempe	iature	TC		TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl
,	ºC DB	ºC DB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	-14,7	-15	10,17	4,51	10,16	4,49	9,60	4,20	9,20	4,01	8,82	3,83	8,12	3,51
	-12,6	-13	10,36	4,46	10,16	4,36	9,60	4,10	9,20	3,92	8,82	3,74	8,12	3,43
	-10,5	-11	11,04	4,45	10,16	4,08	9,60	3,85	9,20	3,67	8,82	3,51	8,12	3,22
	-9,5	-10	11,04	4,33	10,16	3,97	9,60	3,74	9,20	3,57	8,82	3,42	8,12	3,13
	-8,5	-9,1	11,04	4,32	10,16	3,96	9,60	3,73	9,20	3,56	8,82	3,40	8,12	3,12
	-7	-7,6	11,04	4,12	10,16	3,78	9,60	3,56	9,20	3,40	8,82	3,25	8,12	2,98
	-5	-5,6	11,04	4,07	10,16	3,73	9,60	3,52	9,20	3,36	8,82	3,21	8,12	2,95
60	-3	-3,7	11,04	3,74	10,16	3,43	9,60	3,23	9,20	3,09	8,82	2,95	8,12	2,71
	0	-0,7	11,04	3,71	10,16	3,41	9,60	3,21	9,20	3,07	8,82	2,93	8,12	2,69
	3	2,2	11,04	3,57	10,16	3,27	9,60	3,08	9,20	2,94	8,82	2,81	8,12	2,58
	5	4,1	11,04	3,44	10,16	3,16	9,60	2,98	9,20	2,85	8,82	2,72	8,12	2,50
	7	6	11,04	3,35	10,16	3,08	9,60	2,90	9,20	2,77	8,82	2,65	8,12	2,43
	9	7,9	11,04	3,27	10,16	3,01	9,60	2,79	9,20	2,66	8,82	2,55	8,12	2,34
	11	9,8	11,04	3,15	10,16	2,89	9,60	2,70	9,20	2,58	8,82	2,47	8,12	2,27
	13	11,8	11,04	3,01	10,16	2,76	9,60	2,60	9,20	2,49	8,82	2,38	8,12	2,18
	15	13,7	11,04	2,98	10,16	2,74	9,60	2,58	9,20	2,47	8,82	2,36	8,12	2,17
	-14,7	-15	9,20	4,07	8,62	3,80	8,02	3,49	7,64	3,31	7,38	3,19	6,76	2,91
	-12,6	-13	9,20	3,95	8,62	3,68	8,02	3,41	7,64	3,24	7,38	3,12	6,76	2,85
	-10,5	-11	9,20	3,70	8,62	3,45	8,02	3,20	7,64	3,04	7,38	2,93	6,76	2,67
	-9,5	-10	9,20	3,60	8,62	3,36	8,02	3,11	7,64	2,96	7,38	2,85	6,76	2,60
	-8,5	-9,1	9,20	3,59	8,62	3,35	8,02	3,10	7,64	2,95	7,38	2,84	6,76	2,59
	-7	-7,6	9,20	3,42	8,62	3,20	8,02	2,97	7,64	2,82	7,38	2,71	6,76	2,48
	-5	-5,6	9,20	3,38	8,62	3,16	8,02	2,93	7,64	2,78	7,38	2,68	6,76	2,44
50	-3	-3,7	9,20	3,10	8,62	2,90	8,02	2,69	7,64	2,55	7,38	2,46	6,76	2,25
50	0	-0,7	9,20	3,09	8,62	2,88	8,02	2,67	7,64	2,54	7,38	2,45	6,76	2,23
	3	2,2	9,20	2,97	8,62	2,77	8,02	2,56	7,64	2,44	7,38	2,36	6,76	2,16
	5	4,1	9,20	2,86	8,62	2,67	8,02	2,48	7,64	2,37	7,38	2,30	6,76	2,11
	7	6	9,20	2,79	8,62	2,60	8,02	2,42	7,64	2,31	7,38	2,24	6,76	2,05
	9	7,9	9,20	2,72	8,62	2,54	8,02	2,32	7,64	2,22	7,38	2,15	6,76	1,97
	11	9,8	9,20	2,61	8,62	2,44	8,02	2,25	7,64	2,21	7,38	2,14	6,76	1,96
	13	11,8	9,20	2,50	8,62	2,34	8,02	2,17	7,64	2,20	7,38	2,13	6,76	1,96
	15	13,7	9,20	2,48	8,62	2,32	8,02	2,15	7,64	2,05	7,38	1,99	6,76	1,86

4.4- CAPACITY TABLE

(1) Cooling: 10-280 MCDHO

							Indoor	Tempe	rature (² C, DB)					
Conbination % (capacity	outdoor temperature	2	2	2	4	1	8	1	9	2	0	2	2	2	4
index)	(ºC DB)	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	10	20.52	4.60	24.22	5.71	28.83	6.81	30.33	7.41	32.23	8.01	35.94	9.21	39.74	10.41
	12	20.52	4.70	24.22	5.71	28.83	6.91	30.33	7.51	32.23	8.11	35.94	9.41	39.74	10.61
	14	20.52	4.70	24.22	5.81	28.83	7.01	30.33	7.61	32.23	8.31	35.94	9.61	39.74	10.81
	16	20.52	4.80	24.22	5.91	28.83	7.21	30.33	7.81	32.23	8.41	35.94	9.71	39.74	10.91
	18	20.52	4.90	24.22	6.01	28.83	7.31	30.33	7.91	32.23	8.61	35.94	9.91	39.74	11.21
	20	20.52	5.01	24.22	6.21	28.83	7.51	30.33	8.21	32.23	8.81	35.94	10.21	39.74	11.41
	21	20.52	5.11	24.22	6.31	28.83	7.61	30.33	8.31	32.23	9.01	35.94	10.31	39.74	11.71
	23	20.52	5.31	24.22	6.51	28.83	7.91	30.33	8.61	32.23	9.31	35.94	10.71	39.64	11.81
100	25	20.52	5.51	24.22	6.91	28.83	8.31	29.93	9.01	31.83	9.81	35.54	11.11	38.54	11.91
100	27	20.52	5.81	24.22	7.21	28.83	8.71	29.63	9.41	31.43	10.21	35.04	11.61	37-34	12.01
	29	20.52	6.01	24.22	7.51	28.83	9.01	29.53	9.81	31.03	10.61	34.23	11.71	36.24	12.11
	31	20.52	6.31	24.22	7.81	28.33	9.41	29.33	10.00	30.63	11.01	33.23	11.71	35.14	12.01
	33	20.52	6.51	24.22	8.11	27.63	9.81	29.13	10.21	30.23	11.51	32.23	11.71	34.13	12.11
	35	20.52	6.81	24.22	8.51	27.53	10.21	29.00	9.10	29.33	11.41	31.23	11.71	33.03	12.01
	37	20.52	7.31	24.22	9.01	27.13	10.81	27.53	9.51	28.33	12.31	30.13	12.01	31.83	12.31
	39	20.52	7.91	23.82	9.81	26.73	11.71	27.03	9.91	27.23	12.11	29.03	12.51	30.73	12.81
	42	20.52	8.71	23.22	10.71	25.83	12.11	26.53	10.31	26.03	12.51	27.63	12.91	29.33	13.31
	44	20.22	9.31	22.92	11.41	25.23	12.41	26.13	11.61	25.13	12.81	26.73	13.21	28.33	13.51
	10	18.46	4.14	21.78	5.10	25.92	6.12	27.29	6.65	29.00	7.20	32.34	8.30	35.76	9.40
	12	18.46	4.19	21.78	5.17	25.92	6.23	27.29	6.77	29.00	7.32	32.34	8.43	35.76	9.55
	14	18.46	4.25	21.78	5.26	25.92	6.33	27.29	6.89	29.00	7.46	32.34	8.61	35.76	9.76
	16	18.46	4.32	21.78	5.34	25.92	6.45	27.29	7.01	29.00	7.58	32.34	8.75	35.76	9.86
	18	18.46	4.39	21.78	5.45	25.92	6.58	27.29	7.13	29.00	7.77	32.34	8.90	35.76	10.10
	20	18.46	4.51	21.78	5.60	25.92	6.76	27.29	7-37	29.00	7.92	32.34	9.15	35.76	10.31
	21	18.46	4.59	21.78	5.72	25.92	6.89	27.29	7.50	29.00	8.10	32.34	9.32	35.76	10.53
	23	18.46	4.74	21.78	5.90	25.92	7.15	27.29	7.74	29.00	8.39	32.34	9.64	35.64	10.62
90	25	18.46	4.98	21.78	6.20	25.92	7.45	26.95	8.10	28.63	8.81	31.94	10.04	34.64	10.75
90	27	18.46	5.20	21.78	6.49	25.92	7.83	26.60	8.46	28.27	9.16	31.53	10.49	33.60	10.81
	29	18.46	5.44	21.78	6.76	25.92	8.14	26.26	8.82	27.90	9.57	30.83	10.57	32.64	10.89
	31	18.46	5.66	21.78	7.04	25.46	8.45	25.92	9.19	27.54	9.92	29.90	10.53	31.64	10.84
	33	18.46	5.90	21.78	7.33	24.88	8.83	25.57	9.55	27.17	10.33	28.99	10.57	30.71	10.87
	35	18.46	6.10	21.78	7.63	24.76	9.15	25.23	8.91	26.41	10.26	28.10	10.55	29.73	10.85
	37	18.46	6.56	21.78	8.15	24.42	9.74	24.49	9.39	25.49	11.10	27.09	10.81	28.69	11.10
	39	18.46	7.09	21.44	8.83	24.07	10.52	24.30	9.76	24.52	10.94	26.10	11.24	27.62	11.54
	42	18.46	7.80	20.87	9.67	23.20	10.94	23.85	10.12	23.42	11.30	24.86	11.60	26.36	11.96
	44	18.23	8.35	20.64	10.28	22.70	11.19	23.50	10.47	22.61	11.49	24.03	11.85	25.50	12.16



4.4- CAPACITY TABLE

(1) Cooling: 10-280 MCDHO

							Indoor	Tempe	rature (² C, DB)					
Conbination % (capacity	outdoor temperature	2	2	2	4	1	8	1	9	2	0	2	2	2	4
index)	(ºC DB)	TC	Pl	TC	Pl	TC		TC	Pl	TC	Pl	TC	Pl	TC	Pl
	(/	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	10	16.41	3.68	19.37	4.52	23.03	5.44	24.25	5.91	25.78	6.40	28.75	7.38	31.78	8.36
	12	16.41	3.73	19.37	4.59	23.03	5.53	24.25	6.02	25.78	6.51	28.75	7.50	31.78	8.49
	14	16.41	3.78	19.37	4.67	23.03	5.63	24.25	6.13	25.78	6.63	28.75	7.66	31.78	8.68
	16	16.41	3.84	19.37	4.74	23.03	5.73	24.25	6.23	25.78	6.74	28.75	7.78	31.78	8.76
	18	16.41	3.91	19.37	4.84	23.03	5.85	24.25	6.34	25.78	6.91	28.75	7.91	31.78	8.97
	20	16.41	4.01	19.37	4.97	23.03	6.01	24.25	6.56	25.78	7.04	28.75	8.13	31.78	9.16
	21	16.41	4.08	19.37	5.08	23.03	6.12	24.25	6.66	25.78	7.20	28.75	8.28	31.78	9.36
	23	16.41	4.21	19.37	5.24	23.03	6.35	24.25	6.88	25.78	7.46	28.75	8.57	31.67	9.44
80	25	16.41	4.42	19.37	5.51	23.03	6.63	23.95	7.20	25.45	7.83	28.39	8.93	30.79	9.56
00	27	16.41	4.61	19.37	5.77	23.03	6.96	23.64	7.52	25.13	8.14	28.03	9.33	29.87	9.61
	29	16.41	4.83	19.37	6.01	23.03	7.23	23.64	7.84	24.79	8.51	27.41	9.40	29.02	9.68
	31	16.41	5.03	19.37	6.26	22.62	7.51	23.03	8.17	24.47	8.82	26.59	9.36	28.13	9.63
	33	16.41	5.25	19.37	6.52	22.11	7.85	22.73	8.49	24.14	9.18	25.78	9.39	27.30	9.66
	35	16.41	5.43	19.37	6.78	22.01	8.13	22.42	8.81	23.47	9.12	24.97	9.38	26.43	9.64
	37	16.41	5.83	19.37	7.25	21.71	8.66	22.01	9.24	22.65	9.87	24.07	9.61	25.51	9.87
	39	16.41	6.31	19.06	7.85	21.40	9.35	21.61	9.56	21.80	9.72	23.20	9.99	24.54	10.25
	42	16.41	6.93	18.55	8.60	20.63	9.72	21.20	9.98	20.82	10.04	22.10	10.31	23.42	10.63
	44	16.21	7.42	18.35	9.14	20.18	9.95	20.89	10.11	20.82	10.22	21.36	10.54	22.66	10.81

4.4- CAPACITY TABLE

(2) Heating: 10-280 MCDHO

							Indoo	tempe	ature (º	C, DB)				
combination		door erature	2		2		2		2		2			4
% (capacity index)	tempe		TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl
,	ºC DB	ºC DB	kW	kW	kW	kW	kW	kW						
	-15	-14	20.82	9.01	20.52	9.61	20.12	9.71	19.82	10.11	19.52	10.41	19.52	10.41
	-12	-13	23.32	9.31	23.02	9.71	22.82	9.91	22.42	10.41	22.12	10.71	22.12	10.71
	-10	-11	26.13	9.61	25.53	10.11	24.92	10.31	24.62	10.61	24.32	10.81	24.32	10.81
	-7	-8	28.43	10.31	27.73	10.61	26.83	10.71	26.13	11.11	25.53	11.31	25.53	11.31
	-5	-6	30.63	10.91	29.33	11.11	28.33	11.31	27.73	11.51	27.13	11.61	27.13	11.61
	-3	-4	32.13	11.51	30.93	11.71	29.83	11.91	29.03	12.21	27.13	12.01	27.13	12.01
100	0	-1	33-43	11.81	32.13	11.91	30.00	12.21	29.03	12.41	27.13	11.81	27.13	11.81
100	3	2.2	34.03	11.21	33-43	11.41	30.00	11.61	29.03	11.81	27.13	11.01	27.13	11.01
	5	4.1	35.34	10.71	34.03	10.91	30.00	11.11	29.03	10.81	27.13	10.01	27.13	10.01
	7	6	36.24	10.11	34.03	10.31	30.00	8.90	29.03	9.91	27.13	9.11	27.13	9.11
	9	7.9	36.94	10.21	34.03	10.41	30.00	8.78	29.03	9.51	27.13	8.81	27.13	8.81
	11	9.8	36.94	10.41	34.03	10.61	30.00	8.56	29.03	9.31	27.13	8.51	27.13	8.51
	13	12	36.94	10.61	34.03	10.41	30.00	8.41	29.03	9.11	27.13	8.31	27.13	8.31
	15	14	36.94	10.71	34.03	10.11	30.00	8.01	29.03	8.71	27.13	8.01	27.13	8.01
	-15	-14	20.22	8.71	19.92	9.31	19.52	9.41	19.22	9.81	18.92	10.11	18.92	10.11
	-12	-13	22.62	9.01	22.32	9.41	22.12	9.61	21.72	10.11	21.42	10.41	21.42	10.41
	-10	-11	24.82	9.11	24.22	9.61	23.62	9.81	23.32	10.11	23.02	10.31	23.02	10.31
	-7	-8	26.93	9.81	26.33	10.11	25.53	10.21	24.82	10.51	24.22	10.71	24.22	10.71
	-5	-6	28.13	10.01	27.03	10.21	26.03	10.41	25.53	10.61	24.92	10.71	24.92	10.71
	-3	-4	29.63	10.61	28.43	10.81	27.43	11.01	26.73	11.21	24.92	11.11	24.92	11.11
90	0	-1	30.73	10.81	29.63	11.01	29.03	11.21	26.73	11.41	24.92	10.91	24.42	10.91
, ,	3	2.2	30.63	10.11	30.63	10.31	28.43	10.41	26.13	10.61	24.42	9.91	24.42	9.91
	5	4.1	31.83	9.61	30.63	9.81	28.43	9.91	26.13	9.71	24.42	9.01	24.42	9.01
	7	6	32.63	9.11	30.63	9.31	28.43	8.51	26.13	8.91	24.42	8.21	24.42	8.21
	9	7.9	33.23	9.21	30.63	9.41	28.43	8.21	26.13	8.51	24.42	7.91	24.42	7.91
	11	9.8	33.23	9.41	30.63	9.51	28.43	8.01	26.13	8.41	24.42	7.71	24.42	7.71
	13	12	33.23	9.61	30.63	9.41	28.43	7.81	26.13	8.21	24.42	7.51	24.42	7.51
	15	14	33.23	9.61	30.63	9.11	28.43	7.51	26.13	7.81	24.42	7.21	24.42	7.21



4.4- CAPACITY TABLE

(2) Heating: 10-280 MCDHO

							Indoo	rtempe	ature (º	C, DB)				
combination % (capacity		door rature	2	2	2	4	2	0	2	1	2	2	2	4
index)	tempe	Tuture	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl	TC	Pl
	ºC DB	ºC DB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
	-15	-14	19.82	8.51	19.52	9.11	19.12	9.21	18.92	9.61	18.62	9.91	20.32	9.91
	-12	-13	21.42	8.51	21.22	8.91	20.92	9.21	20.62	9.61	20.32	9.91	22.32	9.91
	-10	-11	24.12	8.81	23.52	9.31	22.92	9.51	22.62	9.81	22.32	10.01	23.52	10.01
	-7	-8	26.13	9.51	25.53	9.81	24.72	9.91	24.12	10.21	23.52	10.41	24.92	10.41
	-5	-6	28.13	10.01	27.03	10.21	26.03	10.41	25.53	10.61	24.92	10.71	24.92	10.71
	-3	-4	29.63	10.61	28.43	10.81	27.43	11.01	26.73	11.21	24.92	11.11	24.92	11.11
90	0	-1	30.13	9.01	29.63	11.01	29.03	11.21	26.73	11.41	21.72	10.91	24.92	10.91
80	3	2.2	27.23	9.01	26.73	9.11	25.23	9.31	23.22	9.41	21.72	8.81	21.72	8.81
	5	4.1	28.23	8.51	27.23	8.71	25.23	8.81	23.22	8.61	21.72	8.01	21.72	8.01
	7	6	29.03	8.11	27.23	8.31	25.23	8.21	23.22	7.91	21.72	7.31	21.72	7.31
	9	7.9	29.53	8.21	27.23	8.31	25.23	8.13	23.22	7.61	21.72	7.01	21.72	7.01
	11	9.8	29.53	8.31	27.23	8.51	25.23	8.01	23.22	7.41	21.72	6.81	21.72	6.81
	13	12	29.53	8.51	27.23	8.31	25.23	7.81	23.22	7.21	21.72	6.71	21.72	6.71
	15	14	29.53	8.51	27.23	8.01	25.23	7.51	23.22	6.91	21.72	6.41	21.72	6.41

4.4- CAPACITY TABLE

4.4.1 Eficiency data

	Catalogue datas										
UE	Cooling Capacity (W)	Cooling Power Imput (W)	EER	Energy Label	Heating Capacity (W)	Heating Power Imput (W)	СОР	Energy Label			
10-280 MCDHO	29562	10520	2,81	С	33842	10543	3,21	С			
10-150 MCDHO	14281	5029	2,84	С	16363	5019	3,26	С			

	Model: 10-150 MCDHO											
Outdoor Temperature	Cooling Capacity	Power Imput at different working %										
Dry Bulb (°C)	100% (KW)	10%	% 20% 30% 40% 50% 60% 70% 80% 90% 100%									
15°C	16,01	0,52	1,04	1,55	2,05	2,55	3,00	3,40	3,48	3,75	3,95	
20°C	15,68	0,54	1,08	1,61	2,13	2,67	3,15	3,53	3,60	3,70	4,01	
25°C	15,26	0,57	1,14	1,70	2,23	2,75	3,29	3,83	4,00	4,08	4,17	
30°C	14,84	0,58	1,13	1,68	2,23	2,77	3,21	3,65	4,04	4,22	4,33	
35℃	14,00	0,67	1,19	1,78	2,35	2,92	3,48	3,95	4,32	4,65	4,92	
40°C	13,44	0,67	1,28	1,91	2,54	3,14	3,76	4,37	4,98	5,53	5,99	
45°C	13,02	0,69	1,37	2,05	2,70	3,36	4,00	4,66	5,30	5,85	6,30	

	Model: 10-150 MCDHO												
	Heating Capacity	Power Imput at different working %											
Dry Bulb (°C)	100% (KW)	10%	0% 20% 30% 40% 50% 60% 70% 80% 90% 100										
24°C	22,50	0,52	1,04	1,55	2,05	2,55	3,00	3,40	3,48	3,75	3,95		
12°C	18,00	0,54	1,08	1,61	2,13	2,64	3,15	3,53	3,60	3,70	4,01		
7°C	16,00	0,57	1,12	1,68	2,21	2,76	3,29	3,73	4,00	4,43	4,90		
4°C	14,86	0,58	1,15	1,73	2,28	2,79	3,30	3,75	4,04	4,48	4,92		
o°C	13,16	0,61	1,19	1,78	2,35	2,92	3,48	3,95	4,32	4,65	4,95		
-5°C	11,10	0,64	1,28	1,89	2,45	3,04	3,56	4,00	4,38	4,78	4,98		
-7°C	10,13	0,67	1,33	2,00	2,65	3,16	3,67	4,07	4,40	4,82	5,00		



4.4- CAPACITY TABLE

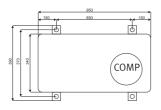
4.4.1 Eficiency data

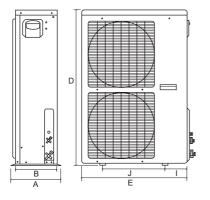
	Model: 10-280 MCDHO											
Outdoor Temperature	Cooling Capacity	Power Imput at different working %										
Dry Bulb (°C)	100% (KW)	10%	0% 20% 30% 40% 50% 60% 70% 80% 90% 100									
15°C	32,46	1,01	2,01	2,87	3,70	4,50	5,30	6,15	6,98	7,76	8,22	
20°C	31,64	1,05	2,03	3,02	3,90	4,70	5,50	6,40	7,10	8,03	8,60	
25°C	30,52	1,10	2,15	3,19	4,20	5,19	6,17	7,02	8,01	8,90	9,78	
30°C	29,68	1,19	2,21	3,29	4,31	5,31	6,27	7,21	8,20	9,16	10,00	
35°C	29,00	1,21	2,38	3,51	4,59	5,71	6,78	7,80	8,75	9,86	10,34	
40°C	26,88	1,32	2,41	3,56	4,67	5,80	6,86	7,89	8,91	9,98	10,90	
45°C	26,04	1,42	2,50	3,77	4,93	6,25	7,30	8,40	9,57	10,60	11,64	

	Model: 10-280 MCDHO											
Outdoor Temperature	Heating Capacity	Power Imput at different working %										
Dry Bulb (°C)	100% (KW)	10%	0% 20% 30% 40% 50% 60% 70% 80% 90% 100%									
24°C	33,00	1,04	2,04	2,80	3,50	4,02	4,50	4,90	5,30	5,60	6,03	
12°C	31,60	1,07	2,13	3,14	4,14	5,10	5,40	5,70	6,10	6,40	6,97	
7°C	30,00	1,13	2,16	3,19	4,20	5,19	6,17	7,03	8,03	8,93	9,28	
4°C	27,07	1,21	2,21	3,30	4,33	5,33	6,28	7,22	8,21	9,16	10,00	
o°C	25,34	1,29	2,41	3,53	4,61	5,71	6,77	7,81	8,80	9,88	10,34	
-5°C	23,16	1,34	2,45	3,58	4,68	5,86	6,86	8,01	8,91	9,91	10,87	
-7°C	22,00	1,44	2,53	3,77	4,93	6,25	7,31	8,45	9,60	10,57	11,59	

4.5- DIMENSIONS / REQUIRED INSTALLATION SPACE

(1) Dimensions: model 10-150 MCDHO





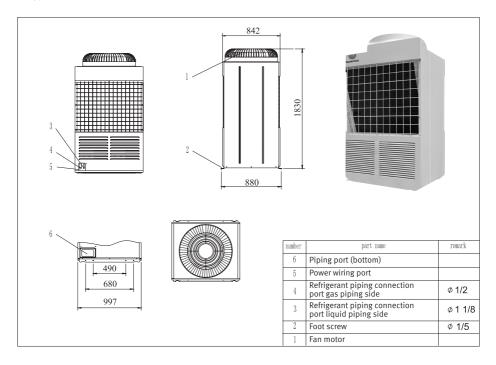


MODEL	Α	В	D	E	J	-1	kg
10-150 MCDHO	390	340	1245	950	650	150	110

Dimensions in mm

4.5- DIMENSIONS / REQUIRED INSTALLATION SPACE

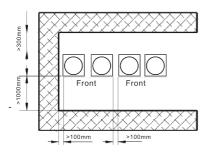
(1) Dimensions: model 10-280 MCDHO



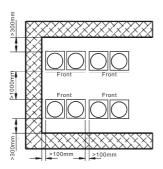
4.5- DIMENSIONS / REQUIRED INSTALLATION SPACE

(2) Outdoor units are higher than the surrounding buildings

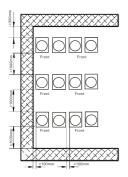
Outdoor units are aligned in one lines



Outdoor units are aligned in two lines



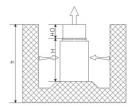
More than 2 lines of outdoor units





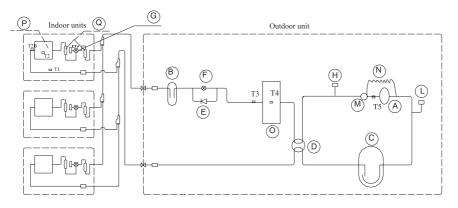
(3) Outdoor units are lower than the surrounding obstacles

If the outdoor units are lower than the surrounding obstacles, in order to ensure an effective "heat exchange "a conduit is strongly recommended to help the heat emission and avoid the discharging air being absorbed into the system again. The conduit is made on the installation spot with the height HD=H-h.(Note: Because the outdoor fan motor have no enough static pressure, the Max. Length should be less than 3meters.)



4.6- PIPING DIAGRAMS

MODEL 10-150MCDHO



Instruction of temperature sensor:

- T1: Ambient temperature sensor is used to compare to the setting temperature and judge and decide the open degree of EXV and decide the output capacity (for indoor units every indoor unit have a T2 temperature sensor).
- T2: Middle temperature sensor of evaporator, is used to modify the open degree of indoor unit EXV compared to the average temperature of T2 (for indoor units every indoor unit have a T2 temperature sensor) Available in cooling mode
- **T2B:**Outlet temperature of evaporator, is used to modify the open degree of indoor unit EXV compared to the average temperature of T2B (for indoor units every indoor unit have a T2B temperature sensor) Available in heating mode
- **T3:** Outlet temperature of condenser (in cooling mode), is used to judge whether the system should to operate defrosting program and judge whether should be stop the defrosting program.
- **T4:** Outdoor ambient temperature, it has two functions: a. to adjust the speed of outdoor fan motor; b. to modify the output of system.
- T5: discharge temperature of compressor, is used to protect the compressor avoid damage because of superheating

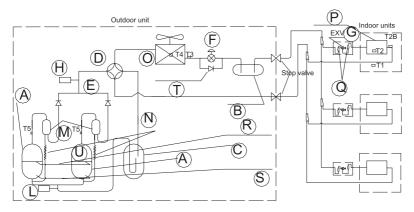
Instruction of other important components:

- **A. Compressor:** Adopts the Copeland (In USA) Digital scroll compressor and controls the output capacity range from 10% to 100% stepless capacity modulation.
- **B. High-pressure accumulator:** In the partial load, the excrescent refrigerant will be storage in this equipment and decrease the load and power input.
- **C. Low-pressure accumulator:** In the partial load, the excrescent refrigerant will be storage in this equipment and decrease the load and power input.
- **D. Four-way valve:** It is only available for cooling and heating system and change the refrigerant flow direction.
- **E. Check valve:** It is only available in cooling mode to form a refrigerant loop.
- **F. Electronic expansion valve:** It is only available in heating mode to control system's superheating and function as a capillary tube to decrease the refrigerant pressure and function as throttle.
- **G. Electronic expansion valve:** According to the capacity requirement of indoor unit adjust the refrigerant flow volume.



- **H. High-pressure switch:** Switches trip when preset pressure exceeds 3.3fo.1MPa, thus stopping operation.
- **L. Low-pressure switch:** Switches trip when the suction pressure is lower than 0.15f 0.1MPa, thus stopping operation.
- **M. Oil separator:** Device that collected oil discharged from the compressor and returns it to the compressor via oil return capillary. Also function as reservoir for holding exceeds oil. N. Oil return capillary: Function as a way for discharged oil return to the compressor. O.Outdoor heat exchanger: Exchange the heat with outdoors ambient P. Indoor heat exchanger: Exchange the heat with indoor ambient
- Q. Muffle and Filter: Decrease the noise and avoid other things blocked the indoor unit EXV.

MODEL 10-280MCDHO



Instruction of temperature sensor:

- T1: Ambient temperature sensor is used to compare to the setting temperature and judge and decide the open degree of EXV and decide the output capacity (for indoor units every indoor unit have a T2 temperature sensor).
- T2: Middle temperature sensor of evaporator, is used to modify the open degree of indoor unit EXV compared to the average temperature of T2 (for indoor units every indoor unit have a T2 temperature sensor) Available in cooling mode
- **T2B:**Outlet temperature of evaporator, is used to modify the open degree of indoor unit EXV compared to the average temperature of T2B (for indoor units every indoor unit have a T2B temperature sensor) Available in heating mode
- **T3:** Outlet temperature of condenser (in cooling mode), is used to judge whether the system should to operate defrosting program and judge whether should be stop the defrosting program.
- **T4:** Outdoor ambient temperature, it has two functions: a. to adjust the speed of outdoor fan motor; b. to modify the output of system.
- **T5:** Discharge temperature of compressor, is used to protect the compressor avoid damage because of superheating.



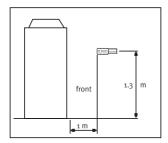
Instruction of other important components:

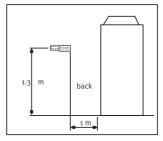
- **A. Compressor:** Adopts the Copeland (In USA) Digital scroll compressor and controls the output capacity range from 10% to 100% stepless capacity modulation.
- **B. High-pressure accumulator:** In the partial load, the excrescent refrigerant will be storage in this equipment and decrease the load and power input.
- **C. Low-pressure accumulator:** In the partial load, the excrescent refrigerant will be storage in this equipment and decrease the load and power input. D. Four-way valve: It is only available for cooling and heating system and change the refrigerant flow direction.
- **E. Check valve:** Prevents the refrigerant return back to the compressor and damaged the compressor.
- **F. Electronic expansion valve:** It is only available in heating mode to control system's superheating and function as a capillary tube to decrease the refrigerant pressure and function as throttle.
- **G. Electronic expansion valve:** According to the capacity requirement of indoor unit adjust the refrigerant flow volume.
- H. High-pressure switch: Switches trip when preset pressure exceeds 3.3fo.1MPa, thus stopping operation
- L. Low-pressure switch: Switches trip when the suction pressure is lower than 0.15f 0.1MPa, thus stopping operation.
- **M.** Oil separator: Device that collected oil discharged from the compressor and returns it to the compressor via oil return capillary. Also function as reservoir for holding exceeds oil.
- **N. Oil return capillary:** Function as a way for discharged oil return to the compressor.
- **O.Outdoor heat exchanger:** Exchange the heat with outdoors ambient
- P. Indoor heat exchanger: Exchange the heat with indoor ambient
- Q. Muffle and Filter: Decrease the noise and avoid other things blocked the indoor unit EXV.
- **R. Gas balance pipe:** In the top of compressors to balance the suction pressure and guarantee every compressor in the same system have the same refrigerant volumes.
- **S. Oil balance pipe:** In the bottom of compressors to balance the oil level of every compressors in system.
- **T. Check valve:** It is only available in cooling mode to form a refrigerant loop.
- **U. Fixed compressor:** On/off according to the capacity requirement of total indoor units



4.7- NOISE LEVEL

4.7.1.- STANDARD OF TESTING

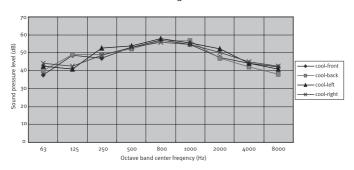




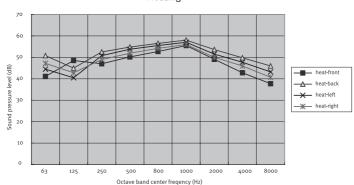
4.7.2.- OCTAVE BAND LEVEL

(1) Model 10-150MCDHO

Cooling



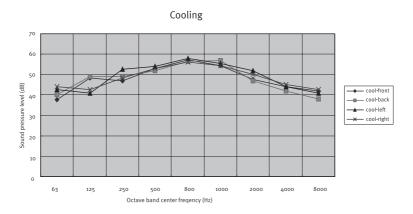
Heating



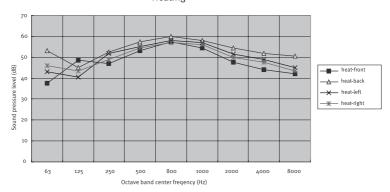


4.7.2.- OCTAVE BAND LEVEL

(2) Model 10-280MCDHO



Heating



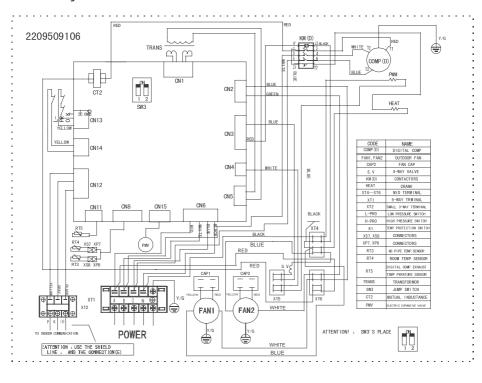
4.8- FUNCTIONAL PARTS & SAFETY DEVICES

Models 10-150MCDHO / 10-280MCDHO

Difference	Code	Name 10-150MCDHO		10-150MCDHO	10-280MCDHO	
	Motor	Mode	el	ZPD70KCE-TFDN-532	ZPD70KCE-TFD-432 /ZP68KCE-TFD-422	
		Output p	ower	4.5KW	5.3 KW +4.5 KW	
Compressor	Compressor	Open temp	erature	135°C	135°C	
	safety OLP P	Starting c	urrent	35A	35A	
	ССН	Crank case	heater	40W	40W×2	
		Fan motor	Model	YDK65-6F	YDK400-8	
	Motor	raii iii0t0i	Output	65W×2	400W	
	MIOLOI	Safety	ON	130°C	145°C	
Safety Devices		Thermostat	OFF	85°C	95°C	
Devices	НР	High temp swite		OFF: $44(\pm 1) \text{ kg/cm}^2$ ON: $32(\pm 1) \text{ kg/cm}^2$		
	LP	Low tempe swite			1.4(±0.5) kg/cm ² 3.0(±0.5) kg/cm ²	
	T3	Thermi (Condenser			25°C =10ΚΩ	
Temperature sensor	Discharge Thermistor	Thermi (Digital dis Thermi (Fixed disc	charge) stor		OFF:125°C ON:85°C	
	PWM	Solenoid : (For comp operati	ressor		and (Part-023-0028-03) ody: EPV-1530D	
Functional Parts	V2 V0		В	oil: EPF-CS002A ody: VPF-20D31 Foshan HUALU		
	4-W/V	4-way v	alve	STF-03N1	STF-01VN1	
	GYF	High pressure valve		DYF-A22N1	GYF-01VN1	
	DYF	Low pressu	re valve	DYF-E14AN1	DYF-01VN1	

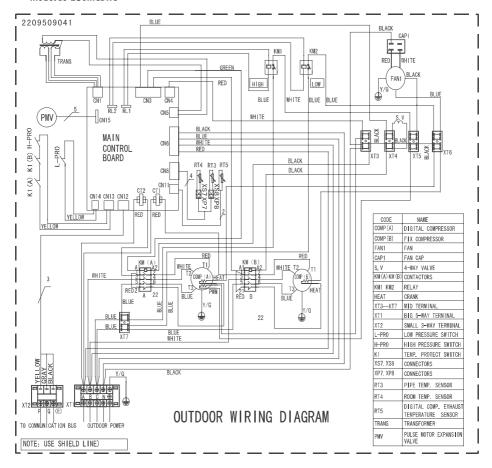
4.9- WIRING DIAGRAMS

Model 10-150MCDHO



4.9- WIRING DIAGRAMS

Model 10-280MCDHO





4.10- TROUBLESHOOTING

4.10.1- The air-conditioner does not run after pressing ON/OFF button.

1) Phase sequence error

Display: The outdoor unit digital diode is displaying "E1"

Solutions: ① Check if the voltage between the power line terminals A,B,C of outdoor units and N is normally 220v. If not please check whether the power lines are well connected.

② After checking the voltage without finding any error, please transpose any two of the outdoor units power lines (A,B.C.)

1) Communication trouble between indoor unit and outdoor unit

Display: Outdoor unit digital diode is displaying "E2" and the timer lamp on the display board of the indoor unit, which has the communication trouble blinks.

Solutions: O Check if communication cable is broken off

2 Exchange P, Q line if there is no broken circuit

3) Indoor unit temperature sensor abnormal

Display: The operation lamp of the indoor unit blinks

Solutions: ① Measure T1, T2, and T3 electric resistance respectively to see if there is an open or short circuit

② If the electric resistance is normal, please test the indoor PCB and change a new one if it does not work well.

4) Water-level switch abnormal

Display: Outdoor unit digital diode display "E6" and Indoor unit alarm lamp blinks Method: Check if the water level switch is closed and replace a new switch if the old one is bad.

4.10- TROUBLESHOOTING

4.10.2- After running a while the system stops to perform protection.

1) Water level alarming trouble

Display: Indoor unit alarm lamp blinks

Solutions: ① Check if water pump runs well

2 Check if the drainpipe is broken

3 Check if the water level switch is blocked

4 If the above situations do not occur please change a new indoor PCB

2) High-pressure protection

Display: The outdoor unit digital diode is displaying: "P1"

Solutions: ① Check if the high-pressure protection switch is broken or loosen

② Test if the discharge temperature of the compressor is too high. If the discharge temperature is too high and the current is lower than the rated current, the system is probably lack of refrigerant and replenishes it.

③ Test if the pressure(high pressure) is too high or the current is overloaded. If so the possible causes are: the overcharge of refrigerant, the system air leakage, or bad ventilation conditions.

a. Let the surplus refrigerant out if refrigerant is too much

b. Let the entire refrigerant out, re-vacuumize the system and then replenish the refrigerant if air is penetrating into the system.

c. Improve the ventilation and heat-emission environment for the outdoor unit

3) Low-pressure protection

Display: The outdoor unit digital diode is displaying:"P2"

Solutions: ① Check if the low pressure protection switch is broken or loosen

② Test if the pressure(low pressure) is too low. The probable reasons are: the overcharge of refrigerant or system blockade.

4) Over current protection

Display: The outdoor unit diode. Is displaying:"P3"

Solutions: ① Check if the current is overloaded.

② The possible reasons for the over current are: the overcharge of refrigerant, air leakage, bad ventilation and heat-emission conditions.

5) Compressor discharge temperature protection, Condenser high temperature protection Display: P4/ P5 is displayed on the outdoor unit diode

Solutions: ①Test digital discharge temperature, outdoor condenser T3 temperature

2 Test system pressure

3 High digital discharge temperature is likely owing to the lack of refrigerant, air leakage or system blockade. Check the above items respectively to solve the problem.

4 Condenser high temperature protection owes to the overcharge of refrigerant, air leakage or bad ventilation and heat-emission conditions.



4.10- TROUBLESHOOTING

4.10.3- Cooling or heating capacity is not enough.

- Address setting for the indoor units is wrong
 Solutions: Do spot check of the indoor unit address and reset for those repeated ones.
- 2) Capacity code setting for the indoor units is wrong Solutions: Do spot check of the indoor unit capacity code and reset for those repeated ones.
- 3) Overcharge or lack of refrigerant
- 4) The system air leakage or alcidine leakage
- 5) PWM of the digital compressor leakage Solutions: Please change a new PWM valve
- 6) 4-way valve leakage / blockade Solutions: Replace with a new 4-way valve
- 7) Compressor leakage/ wear and tear Solutions: Replace with a new compressor
- 8) Too many indoor units are connected. If all the indoor units are in operation, cooling/heating effect will be lowered.
 - Solutions: ① Avoid all the indoor units running simultaneously.
 - 2 Reduce the indoor units that connected in the system

4.10.4- The whole system may run well while a specific indoor unit does not operate quite well.

- 1) Mode conflict
 - If within one system some indoor units are in cooling mode, while some others are in heating mode, mode conflict will be displayed on those cooling units LED and as a result those units will be power off.
- 2) Indoor sensor electric resistance changing When the indoor sensor electric resistance changes to a certain extent, under the control of the PCB, the indoor unit will stop running at the set temperature. Consequently the cooling effect is weakened
- 3) Electric throttle kit blockade Solutions: Use new electric throttle kits
- 4) EXV trouble of the power off units
 - If the refrigerant is leaked owing to EXV trouble of the power off units, the refrigerant will run through that power-- off units. As a result the cooling/heating capacity of the operating units is lowered.
 - Solutions: Replace all the bad electric throttle kits



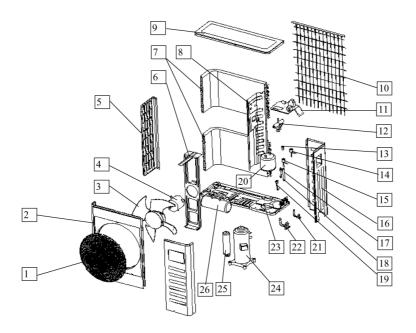
4.11- ACCESSORIES

Name	Quantity	Outline	Usage
Outdoor unit installation manual	1	This manual	
Screws bag	1		For maintenance
Screw driver	1		For the toggle switch



4.12- EXPLODED VIEW

Model 10-150MCDHO



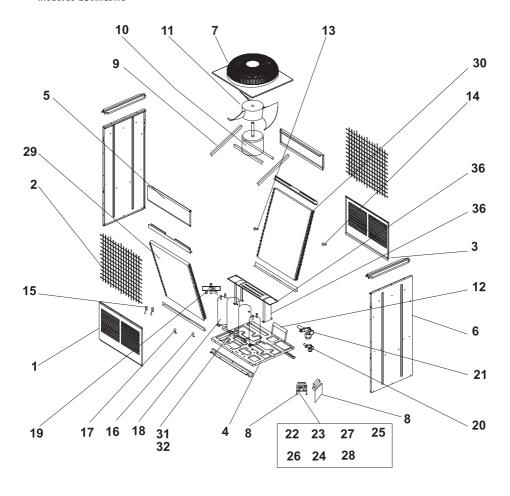
4.12- EXPLODED VIEW

Model 10-150MCDHO

Description	Model	Number
FRONT NET ASS'Y	10-150 MCDHO	1
FRONT BOARD ASS'Y	10-150 MCDHO	2
PROPELLER FAN ASS'Y	10-150 MCDHO	3
FAN MOTOR	10-150 MCDHO	4
LEFT CLAPBOARD ASS'Y	10-150 MCDHO	5
HOLDER OF FAN MOTOR	10-150 MCDHO	6
CONDENSER	10-150 MCDHO	7
SEPARATING BOARD ASS'Y	10-150 MCDHO	8
COVERASS'Y	10-150 MCDHO	9
REARNETASS'Y	10-150 MCDHO	10
E-PARTS	10-150 MCDHO	11
E-PARTS BOXASS'Y	10-150 MCDHO	11.1
PCB ASS'Y	10-150 MCDHO	11 2
CONTACTOR	10-150 MCDHO	11 3
COMPRESSOR CAPACITY	10-150 MCDHO	11.4
FAN MOTOR CAPACITY	10-150 MCDHO	11 5
TRANSFORMER	10-150 MCDHO	11.6
FOUR-WAY VALVE	10-150 MCDHO	12
DISTRIBUTOR	10-150 MCDHO	13
ELECTRON THROTTLE VALVE	10-150 MCDHO	14
ELECTROMAGNETIC VALVE	10-150 MCDHO	15
REAR RIGHT CLAPBOARD ASS'Y	10-150 MCDHO	16
ONE-WAY VALVE	10-150 MCDHO	17
LOW PRESSURE CUTOUT	10-150 MCDHO	18
HIGH PRESSURE CUTOUT	10-150 MCDHO	19
VAPOR LIQUID SEPARATOR	10-150 MCDHO	20
GAS PIPE VALVE	10-150 MCDHO	21
LIQUID PIPE VALVE	10-150 MCDHO	22
CHASSIS ASS'Y	10-150 MCDHO	23
DIGITAL SCROLL COMPRESSOR	10-150 MCDHO	24
OIL SEPARATOR	10-150 MCDHO	25
LIQUID TANKER	10-150 MCDHO	26

4.12- EXPLODED VIEW

Model 10-280MCDHO



4.12- EXPLODED VIEW

Model 10-280MCDHO

Description	Model	Number
FRONT BOTTOM COVER	10-280 MCDHO	1
GRILLE	10-280 MCDHO	2
TOP COVER	10-280 MCDHO	3
REAR BOTTOM COVER	10-280 MCDHO	3
UNIT S BASE	10-280 MCDHO	4
FRONT-REAR UPPER COVER	10-280 MCDHO	5
SIDE COVER	10-280 MCDHO	6
ELECTRONIC BOX	10-280 MCDHO	8
FAN MOTOR SUPPORT	10-280 MCDHO	9
FAN MOTOR	10-280 MCDHO	10
FAN	10-280 MCDHO	11
COOLING PIPES CONNECTION SUPPORT	10-280 MCDHO	12
COIL SENSOR	10-280 MCDHO	13
TEMPERATURE SENSOR	10-280 MCDHO	14
DISCHARGE SENSOR	10-280 MCDHO	15
HIGH PRESSURE SWITCH	10-280 MCDHO	16
LOW PRESSURE SWITCH	10-280 MCDHO	17
LIQUID SEPARATOR	10-280 MCDHO	18
4-WAYS VALVE	10-280 MCDHO	19
LIQUID SERVICE VALVE	10-280 MCDHO	20
GAS SERVICE VALVE	10-280 MCDHO	21
PCB	10-280 MCDHO	22
TRANSFORMER	10-280 MCDHO	23
RELAY	10-280 MCDHO	24
5-TERMINAL BLOCK	10-280 MCDHO	25
TERMINAL BLOCK	10-280 MCDHO	26
CONTACTOR	10-280 MCDHO	27
COMPRESSOR S CONDENSER	10-280 MCDHO	28
A-SYSTEM S COIL	10-280 MCDHO	29
B-SYSTEM S COIL	10-280 MCDHO	30
COMPRESSOR	10-280 MCDHO	31
COMPRESSOR	10-280 MCDHO	32
ELECTRONIC EXPANSION VALVE	10-280 MCDHO	33
COMPRESSOR S CONNECTION WIRE	10-280 MCDHO	34
OIL SEPARATOR	10-280 MCDHO	35
DRAIN PAN	10-280 MCDHO	36



5.1- WARNINGS

Carefully read the following information for the correct handling of the air-conditioning equipment. Below are different types of safety warnings and tips:

These devices must be installed and used in accordance with all refrigerating, electrical and mechanical installation regulations and standards applicable in the place where the equipment is to be installed.

Saunier Duval, in line with its policy on continual improvements to its products, reserves the right to modify the specifications without prior notice.

Saunier Duval cannot envisage all the possible circumstances which may involve potential risk.

The equipment has been designed and manufactured for climate control through air conditioning; the application of the same in other domestic or industrial uses shall be done under the sole responsibility of the person who projects, installs or uses the same.

Prior to any intervention involving the equipment (installation, starting up, use and maintenance), the staff in charge of such operations must be fully aware of the instructions and recommendations contained in the installation manual for the device.

Should any anomalous phenomena be detected (e.g. smell of smoke), immediately disconnect the power supply and contact the distributor so he may proceed as appropriate. Any use of the airconditioning equipment under these anomalous conditions may result in deterioration and cause a short-circuit or fire

Never introduce fingers or other objects in the air inputs or outputs or in the slats, whilst the air equipment is in operation, as the high speed of the ventilator may result in injury.

In the event of a leak of refrigerant gas, call out a specialist technician in order that he may take preventative measures. The leakage of refrigerant may, in certain amounts, cause the displacement of oxygen. If the air-conditioning equipment is installed in a small room, ensure that the measures necessary to prevent any symptoms from lack of oxygen in the event of refrigerant leakage are taken.

Whenever the equipment is taken down and then reinstalled, check that the new installation is correct. Failure to do this may generate water leaks, refrigerant leaks, short-circuits or even fire.

Do not dismount the outdoor unit output. The exposition of the ventilator may be very hazardous.

We recommend regularly checking the base of the outdoor unit in order to detect possible deterioration; if the damaged base is not repaired, it may come loose and cause an accident.

Never place any items on the outdoor unit.

Never handle the equipment with wet or damp hands, given the risk of electric shock.

Only use fuses suitable for each model. Never use wire or any other material to replace the fuse, as this may result in failure or fire.

Never position any source of heat with a flame in the airflow of the equipment, and do not use sprays or other inflammable gases near to the air equipment, as this may cause a fire.

The installation of the air equipment close to sources of heat, combustible or corrosive materials or an air connection mouth of an adjacent building is forbidden.

Disconnect the power supply before cleaning the equipment, thus avoiding the risk of short-circuits or injury.

Do not clean the equipment with water.

Connect the earth cable to the appropriate line (not to the gas pipes, water pipes, neutral or telephone line). Incorrect earthing may result in electrical hazards.



Connect the condensation pipe correctly in order to ensure proper discharge. An incorrect connection of the pipe may cause water to leak.

Install differentials in order to prevent possible short-circuits.

Do not connect the equipment whilst using insecticides or pesticides. Toxic chemicals may become deposited on the air equipment and affect people who are allergic to chemical substances.

Prevent prolonged exposition to the cooling air and to extreme temperatures in the room. This may present a health hazard.

Never expose animals or plants directly to the airflow, as they may suffer damage or harm.

The person in charge of the receipt of the equipment should carry out a visual control to check for any damage which may have occurred during transit.

The refrigerating installation must be done with specific refrigerant pipes (ATTENTION! never for plumbing).

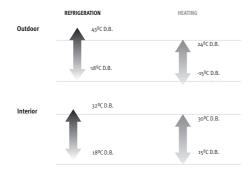
In order for its products to maintain optimal operation parameters, Saunier Duval recommends regular maintenance checks, carried out always by a qualified person. This service may be covered by the official Saunier Duval TAC, which can offer a personalised contract in line with your needs.

Your product has been marked with this symbol. This means that it should not be mixed with other unclassified domestic waste at the end of its useful life, since its disposal must be carried out in accordance with applicable local and national regulations, respecting the environment at all times. In consequence, at the end of the useful life of the equipment, the user is obliged to contact an authorised local waste handler for transport to a suitable treatment plant. Whenever the product is withdrawn for replacement by a new product of similar use, the withdrawn product can be handed over to the distributor of the new device, who shall take charge of the said disposal.

Contact local authorities for further information.

5.2- OPERATION LIMITS

This air-conditioner has been designed for the following temperatures. Keep it in operation within these margins.

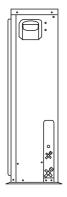


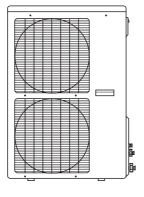
(*) Range in the control: from 18°C to 30°C



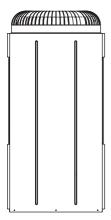
5.3- DESCRIPTION OF THE MODELS & POSSIBLE COMBINATIONS

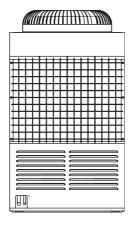
5.3.1- OUTDOOR UNITS





MODEL 10-150 MCDHO

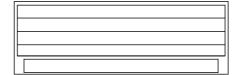




MODEL 10-280 MCDHO

5.3- DESCRIPTION OF THE MODELS & POSSIBLE COMBINATIONS

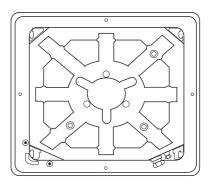
5.3.2- INTERIOR UNITS





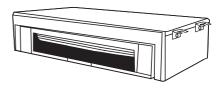
WALL MOUNTED MODELS

10-025 MCDHWI 10-035 MCDHWI 10-050 MCDHWI



CASSETTE MODELS

10-025 MCDHKI 10-035 MCDHKI 10-060 MCDHKI



CONDUCT MODELS

10-025 MCDHDI

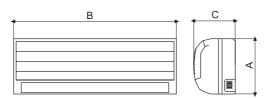
10-035 MCDHDI

10-060 MCDHDI

10-075 MCDHDI

5.4- DIMENSIONS

5.4.1- DIMENSIONS OF THE WALL MOUNTED INTERIOR UNITS

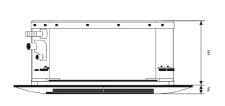


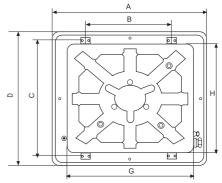
MODEL	Α	В	С	kg
10-025 MCDHWI	265	790	195	11
10-035 MCDHWI	265	790	195	11
10-050 MCDHWI	292	920	225	15

Dimensions in mm

5.4.2- DIMENSIONS OF THE CASSETTE INTERIOR UNITS

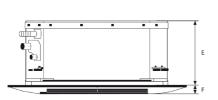
MODEL	Α	В	C	D	Ε	F	G	Н	kg	
10-025 MCDHKI										
10-035 MCDHKI	650	401	611	650	254	30	580	580	21+3	Dimensions in mm

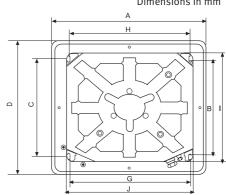




MODEL	Α	В	С	D	E	F	G	Н	1	J	kg
10-060 MCDHKI	950	690	679	950	240	40	785	778	840	840	25+6

Dimensions in mm



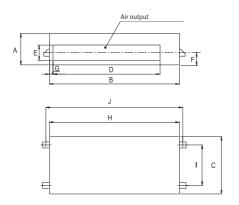




100

5.4- DIMENSIONS

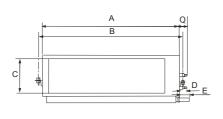
5.4.3- DIMENSIONS OF THE CONDUCT INTERIOR UNITS

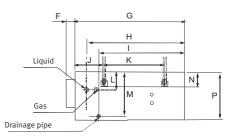




MODEL	Α	В	С	D	E	F	G	Н	-1	J	kg
10-025 MCDHDI	210	870	385	715	102	87	25	870	268	915	15
10-035 MCDHDI	210	870	385	715	102	87	25	870	268	915	15

Dimensions in mm





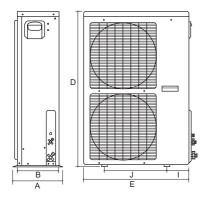
MODEL	Α	В	С	D	Ε	F	G	Н	-1	J	K	L	M	N	P	Q	kg
10-060 MCDHDI	1000	1050	175	60	80	300	800	720	630	160	440	120	285	100	298	70	38
10-075 MCDHDI	1000	1050	175	60	80	300	800	720	630	160	440	120	285	100	298	70	38

Dimensions in mm



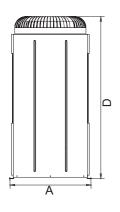
5.4- DIMENSIONS

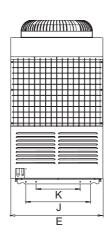
5.4.4- DIMENSIONS OF THE OUTDOOR UNITS



MODEL	Α	В	D	E	J	1	kg
10-150 MCDHO	390	340	1245	950	650	150	110

Dimensions in mm





MODEL	Α	D	E	J	K	kg
10-280 MCDHO	880	1830	997	680	490	245

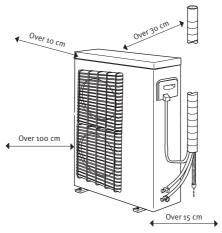
Dimensions in mm



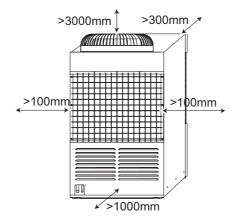
5.4- DIMENSIONS

5.4.5- OUTDOOR UNIT INSTALLATION DIAGRAM

OUTDOOR UNIT 10-150 MCDHO



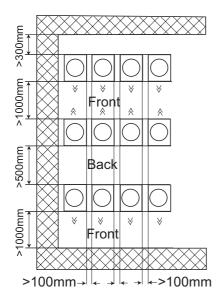
OUTDOOR UNIT 10-280 MCDHO

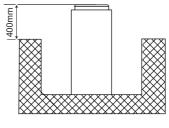




5.4- DIMENSIONS

5.4.5.1 MINIMUM DISTANCES AROUND THE DEVICE



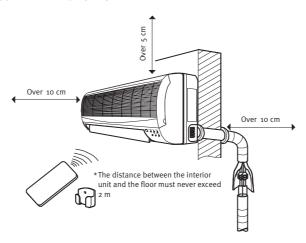


10-280 MCDHO

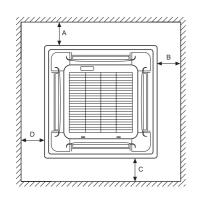
5.4- DIMENSIONS

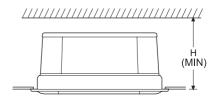
5.4.6- INTERIOR UNIT INSTALLATION DIAGRAM

5.4.6.1 WALL MOUNTED INTERIOR UNITS



5.5.6.2 CASSETTE INTERIOR UNITS





MODEL	Α	В	С	D	Н
10-055 MCDHKI	1000	1000	1000	1000	285
10-035 MCDHKI	1000	1000	1000	1000	285
10-060 MCDHKI	1000	1000	1000	1000	285

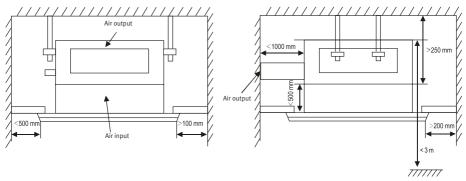
Dimensions in mm



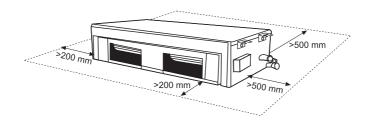
5.4- DIMENSIONS

5.5.6.3 CONDUCT INTERIOR UNITS

10-025 MCDHDI 10-035 MCDHDI



10-060 MCDHDI 10-075 MCDHDI



5.5- INSTALLATION OF THE INTERIOR WALL MOUNTED UNIT

5.5.1 PLAN THE ASSEMBLY PLACE FOR THE INTERIOR UNIT

- As a general measure, mount the interior unit close to the ceiling.
- 2 Bear in mind the minimum distances from the ceiling and walls, as described in diagram 5.5.
- 3 If there is already an orifice in the wall or the refrigerant/condensed water pipe has already been installed, the assembly of the base plate should be in line with these conditions.
- 4 Choose a place of assembly which allows the air to uniformly reach any part of the installation. The air current must not be interrupted by pillars, installations or lamps.
- 5 Do not situate the interior unit too close to work posts or seats, thus avoiding unpleasant air currents.
- **6** Do not mount the interior unit close to sources of heat.

5.5.2 ATTACHING THE ASSEMBLY PLATE

- Place the assembly plate on the wall of the envisaged installation area.
- 2 Level the plate horizontally on the wall, then provisionally hold the plate in place using a nail, or mark the necessary orifices on the wall. On the assembly plate there are numerous orifices which can be used to attach the same.
 - 385.5 mm

 385.5 mm

 310.5 mm

 247.5 mm

- 3 Once again check that the plate is properly levelled and that the orifices are marked on the wall.
- 4 Check that no electrical cables or domestic electrical supply lines pass by the borehole points marked on the wall.
- 5 Bore the orifices and then attach the assembly plate with the supplied screws and plugs.



5.5- INSTALLATION OF THE INTERIOR WALL MOUNTED UNIT

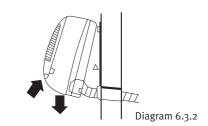
5.5.3 CONNECTION OF THE REFRIGERANT PIPES AND CONNECTION OF THE CONDENSATION PIPE

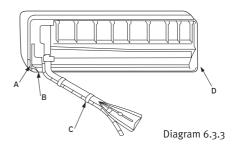
5.5.3.1 Pipe layout to the rear section

Secure the pipes and the condensed water hose and then isolate using thermal protection isolation.

5.5.3.2 Pipe layout to the left/lower left section

- In the case of connection on the left, carefully break open the orifice on the cover using a set of pliers.
- In the case of pipe connection through the rear left section: Carefully bend the installation pipe to the right. (Attention: Do not strangle the pipe!). Cut the pipes, leaving sufficient length as to join with the interior unit connections.
- **3** Do not forget to insert the nut before making the bellmouth connection.
- 4 Complete to the bellmouth connection in the installed refrigerant pipe.
- 5 In the interior unit, carefully remove the isolation from the bellmouth connections.
- **6** Position the interior unit on the upper edge of the assembly plate.
- 7 Tilt the lower part of the interior unit forwards and insert an auxiliary means (e.g. a piece of wood) between the assembly plate and the device, as shown in diagram 6.3.2.
- 8 Connect the refrigerant pipes and the condensed water hose with the corresponding pipe and outflow of the installation.
- 9 Correctly isolate the refrigerant pipes. To this end, cover the possible isolation cut-offs with isolation tape or isolate the unprotected refrigerant pipe with the corresponding isolation material used in the cooling technique.
- **10** Ensure that the pipes in the installation are properly isolated and separated.
- 11 Insert the electrical conduct from the upper part of the internal unit through the orifice included for this purpose and pull it forwards.





Ref.	Description Diagram 6.3.3
Α	Right pipe cover
В	Interior pipe cover
С	Set with adhesive tape
D	Left pipe cover

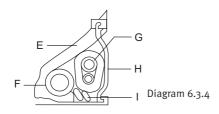
5.5.3.3 Pipe layout to the right/lower right section

- In the case of connection on the right/ lower right section, carefully break open the orifice on the cover using a set of pliers.
- 2 Carefully bend the interior piece conducts to the right or downwards in the required connection direction (Attention: Do not strangle the pipe!).
- 3 Do not forget to insert the nut before making the bellmouth connection.
- 4 Complete to the bellmouth connection in the installed refrigerant pipe.



5.5- INSTALLATION OF THE INTERIOR WALL MOUNTED UNIT

- 5 In the interior unit, carefully remove the isolation from the connectors.
- **6** Position the interior unit on the upper edge of the assembly plate.
- 7 Tilt the lower part of the interior unit forwards and insert an auxiliary means (e.g. a piece of wood) between the assembly plate and the device, as shown in diagram 6.3.2.
- 8 Connect the refrigerant pipes and the condensed water hose with the corresponding pipe and outflow of the installation.
- 9 Correctly isolate the refrigerant pipes. To this end, cover the possible isolation cut-offs with isolation tape or isolate the unprotected refrigerant pipe with the corresponding isolation material used in the cooling technique.
- 10 Ensure that the pipes in the installation are properly isolated and separated. Insert the electrical conduct from the upper part of the internal unit through the orifice included for this purpose and pull it forwards. Connect the interior piece terminal strip line as shown in the corresponding connections diagram.
- 11 Correct that the cables are properly secured and connected. Then mount the cable cover.
- 12 After starting up and testing the operation of the equipment, secure the complete interior piece as described below. The bellmouth connections must be accessible in order to test the seal.
- 13 Install the assembly plate and use it to position the orifices.



Ref.	Description Diagram 6.3.4	
E	Thermo-isolating material	
F	Outflow hose	
G	Pipe	
Н	Pipe support plate	
I	Connection cable (interior/outdoor)	

5.5.3.4 Installation of the interior unit frame

- Before attaching the interior unit, ensure that the installation does not have any leakage or other problems.
- Mount the interior unit frame on the upper slots of the assembly plate. Briefly move the frame from side to side in order to check it is properly secured to the assembly plate.
- 3 Slightly raise the frame by the lower section, pressing it against the assembly plate, and then move it down vertically. The frame should fit on the lower supports of the assembly plate.
- 4 Then check that the interior piece is properly secured.
- 5 Repeat the process if the frame is not correctly fitted on the supports.

5.5.4 DISCHARGE OF THE CONDENSED WATER IN THE INTERIOR UNIT

There are different ways to discharge the condensed water generated in the interior unit.

- You can discharge the condensed water by gravity along with the refrigerant pipe. This can be configured in a visually attractive manner, e.g. a common channel.
- The condensed water pipe must flow downward from the interior unit towards the exterior, thus preventing the water from returning.



- 3 You can force the condensed water downward naturally from the interior unit towards a receptacle (sink, basin, etc.). There are different unseen installation possibilities.
- When it is not possible to naturally discharge the condensed water, we can discharge using an external pump for condensed water, forcing it to the exterior or incorporating it into the domestic drainage system.
- The condensed water is forced from the interior unit to a small condensation collector tank. The condensation pump receives a signal from this tank once a specific filling level is reached. The pump sucks the condensed water from the collector tank and transports it to the exterior or to the connected drainage system.
- **6** This pump for condensation water is available as an original accessory with the corresponding installation instructions.

NOTES:

- 1 Always check that the air circulates throughout the condensed water pipe, thus ensuring that the condensed water can leave freely. If this is not the case, the condensed water may leave through the interior unit piece.
- 2 Mount the pipe without bending it in order to prevent the obstruction of the water.
- 3 If the condensed water pipe leads to the exterior, use thermal isolation to prevent freezing.
- 4 If the drainage hose is to be positioned in a room, thermal isolation must be applied.

1	With ascending and descending curvature.	
2	With the end of the hose submerged in the water.	
3	Wavy.	
4	The distance to earth is too small.	Under 5 cm
5	With the end of the hose close to a water point which generates unpleasant smells which may penetrate the site.	

5.6- INSTALLATION OF THE INTERIOR CASSETTE UNIT

5.6.1- PLAN THE ASSEMBLY PLACE FOR THE INTERIOR UNIT

- Mount the cassette under the ceiling, respecting the minimum distances contained in section 5.6 of this manual.
- You can install the cassette in the ceiling or complete the assembly in the ceiling once the cassette is installed.
- 3 Ensure that there is sufficient space in order to carry out cassette inspection and connection work.
- 4 Choose a place of assembly which allows the refrigerated air to uniformly reach any part of the installation. The air current must not be interrupted by pillars, installations or lamps.

- 5 Do not situate the interior unit too close to work posts or seats, thus avoiding unpleasant air currents.
- **6** Do not mount the cassette close to sources of heat.
- 7 All the attachment elements used must, along with the ceiling itself, have sufficient stability as to safely support the weight of the cassette.
- **8** Respect the minimum distances recommended in section 5.6

5.6.2- ASSEMBLY OF THE INTERIOR UNIT

5.6.2.1- General recommendations

- 1 The frame is attached in the ceiling using 4 hanging bars. The bars must have two nuts and washers to lock the unit in its position.
- When raising the cassette to its position, take care not to raise the unit with pressure on the drip tray, as this may result in damage.
- 3 When raising the cassette, take care and only support it using the four corners. Do not raise the unit using the condensation drainage pipe or the pipe connections.
- We recommend mounting the connection pipes for refrigerant, condensed water and electrical conduction before proceeding with the assembly of the cassette in the ceiling.
 - In this manner, the ceiling cassette connection to the refrigerant circuit, the discharge of the condensed water and the electrical power supply can be carried out during or just after the assembly of the cassette. The subsequent installation of the connection pipes with the ceiling closed and the ceiling cassette mounted can only be carried out in a limited manner through an inspection hole.

- 5 For safety reasons, we recommend that two people should assemble the interior unit.
- 6 Once the condensation drainage pipes and the pipe connections have been connected, once again check that the unit is correctly levelled.
- 7 The lower part of the cassette must be horizontally level and even with regards to the finished ceiling. An incorrect assembly may result in unwanted air circulation in the cassette or in the false ceiling. This will have a negative effect on the operation of the cassette and may result in the formation of condensed water in the lower part of the cassette or in the ceiling area.



5.6- INSTALLATION OF THE INTERIOR CASSETTE UNIT

5.7.2.2- Assembly of the cassette without false ceiling

The necessary installation measurements can be found in section 5.6.

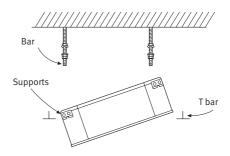
- Draw the position of the attachment elements in accordance with the indicated measurements, and then mount the attachments in the envisaged point.
- 2 Adapt the length of the attachments to the required measurements. (Diameter of the threaded rod M 10).
- 3 Secure each support with an attachment nut and a counternut under the cassette support angle, and an attachment nut above the support angle.
- 4 Attach the cassette without tightening the counternuts.
- 5 Adjust the cassette, regulating the lower attachment nuts mounted on the threaded rods/threaded pins, in such a manner as the cassette is horizontal and at the correct height.
- 6 Then tighten the upper attachment nut and the counternut.

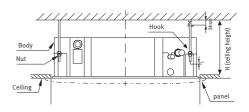
5.7.2.3- Assembly of the cassette with false ceiling

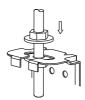
The necessary installation measurements can be found in section 5.6. Open the false ceiling in accordance with the opening measures indicated for the cassette.

- Draw the position of the attachment elements in accordance with the indicated measurements, and then mount the attachments in the envisaged point.
- 2 Adapt the length of the attachments to the required measurements. (Diameter of the threaded rod M 10).
- 3 Secure each support with an attachment nut and a counternut under the cassette support angle, and an attachment nut above the support angle.
- 4 Lift up the cassette, slanting if necessary, in order to introduce it through the opening in the false ceiling.
- 5 Attach the cassette without tightening the counternuts.

6 Adjust the cassette, regulating the lower attachment nuts mounted on the threaded rods/threaded pins, in such a manner as the cassette is horizontal and at the correct height.







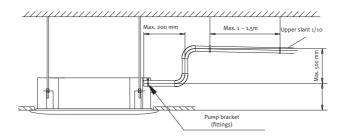


5.6- INSTALLATION OF THE INTERIOR CASSETTE UNIT

5.6.3- DRAINAGE PIPES

- **1** The cassette has an incorporated condensation pump.
- The diameter of the discharge pipe should be at least equal to the diameter of the interior unit connection (polyethylene pipe; interior diameter 25 mm; outdoor diameter 32 mm).
- 3 The condensed water pipe must be as short as possible and present a minimum slope of 1% from the interior unit.
- 4 When mounting the discharge pipe, ensure that the distances for the attachments are correct.
- 5 Prevent any bending of the pipe, in order

- to ensure the correct discharge of the condensed water.
- 6 Join the discharge pipe with the condensed water connection in the interior unit.
- **7** Then secure the condensed water discharge pipe.
- 8 Check the seal tightness of the connection for condensed water in the device, and of the condensed water discharge pipe.
- **9** Isolate the condensed water pipe with thermal isolation.



5.6.4- INSTALLATION OF DECORATIVE PANEL

- A poorly mounted cover may result in unwanted leakage of condensed water through the lower section of the cassette, resulting in anomalies in the display.
- Ensure that the interior unit is in the correct installation position. To this end, the interior unit must be mounted horizontally and level with regards to the lower edge of the finished ceiling.
- 3 Check the size of the opening in the ceiling. Once the cover is in place, the hole in the ceiling should not be visible.
- 4 When positioning the decorative piece, take care not to position the air swing motor underneath the refrigerant pipes.
- **5** First provisionally position the cover screws in order to level the cover.

- **6** Once the cover has been levelled, tighten the screws.
- **7** Connect the synchronous engine cables and the signal lines.
- **8** Carry out an operation test.
- 9 If there is no response to the remote control signal, check the connection. Once again check the operation 10 seconds after disconnecting the electrical supply.



5.6- INSTALLATION OF THE INTERIOR CASSETTE UNIT

5.6.5- CONNECTION OF THE PIPES

- 1 The possibility of accessing the interior unit device connections must be ensured in the refrigerant pipe connection.
- 2 In the interior unit, remove the isolation from the flanged connections.
- 3 Cut the pipes, leaving sufficient surplus length as to join with the outdoor piece connections.
- 4 Carefully bend the interior unit connection pipes in the required connection direction (Attention: Do not damage the pipe!)
- 5 Do not forget to insert the nut before making the bellmouth connection.
- **6** Complete to the bellmouth connection in the installed refrigerant pipe.

7	Coni	nect	the	refri	gera	nt p	ipe	S	and
	the	cond	lense	d wa	iter	hose	wi	th	the
	corre	espon	ding	pipe	and	outf	low	of	the
	insta	allatio	n.						

- 8 Correctly isolate the refrigerant pipes. To this end, cover the possible isolation cut-offs with isolation tape or isolate the unprotected refrigerant pipe with the corresponding isolation material used in the cooling technique.
- **9** Ensure that the pipes of the installation are properly isolated and separated.

Ref.	Description Diagram 7.5
Α	Gas line
В	Isolation
С	Liquid line
D	Winding
E	Outflow pipe

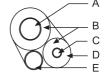


Diagram 7.5

5.6.6- AIR RENEWAL CONNECTION

The following models are fitted with an air renewal connection:

MODEL	RENEWAL
10-060 MCDHKI	✓
10-060 MCDHDI	✓
10-075 MCDHDI	✓

5.7- INSTALLATION OF THE INTERIOR CONDUCT UNIT

5.7.1 CONDUCT INTERIOR UNITS

5. 7.1.1 Initial check

- Install the interior unit leaving sufficient space around the same as to allow handling and maintenance tasks, as shown in the figure.
- Do not allow obstacles to block the air connection or discharge flow.
- Do not install the interior unit in a machinery workshop or kitchen in which there is oil or fumes in the air which may flow towards the interior unit. The oil will become deposited on the heat interchanger, resulting in poor performance by the unit. It may even result the deforming or breakage of the plastic parts of the interior unit.
- Pay special care with regards to the following points when the interior unit is installed in a hospital or any other area in which there are electromagnetic waves from medical equipment:
- A) Do not install the interior unit in a place in which the electromagnetic waves will have

- a direct influence on the electrical box, on the remote control switch or on the remote control cable.
- B) Install the unit as far away as possible from the source of electromagnetic waves. Place it at a distance of at least 3 metres.
- C) Install a noise filter when the power source produces unpleasant noise.
- D) Choose the final location and the installation direction of the internal unit with special attention to the pipes and cables and to maintenance.
- E) When determining the location of the interior unit, give consideration to the air conducts network, favouring the distribution of the same.

5.7.1.2 Attachment of the interior unit

 Mount the suitable attachments for each type of structure, paying special attention to the possible transmission of vibration and noise, installing, if necessary, anti-vibration and soundproofing elements.

5.7.1.3 Installation of the interior unit

- Introduce and twist a nut on each of the rods.
- Raise the interior unit, introducing the rods in the suspension support holes.
- Position a washer and a nut on each of the rods.
- Level the machine and secure it, tightening in such a manner as one nut pressures the other.
- We recommend positioning a counternut for the nut placed on the lower part of the suspension rods.
- This interior unit is initially designed for positioning in false ceilings; when installing in an area of direct access, protect the electrical connection strip in order to prevent accidents.



5.7- INSTALLATION OF THE INTERIOR CONDUCT UNIT

5.7.1.4 Installation of the drainage pipe

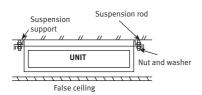
- Take special care when installing the drainage pipes of the unit, since problems with the same may result in spillage of the condensed water of the evaporator. The unit is equipped with a drainage connection.
- Do not place the drainage pipe in an ascending position, since the drainage water would return to the unit and spill over when the unit is halted.
- Do not connect the drainage pipe to the

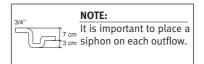
- sanitary outflows, waste water pipes or any other drainage pipe without installing a siphon.
- When the drainage pipe is connected to other interior units, the connection positions of each unit must be higher than the common drainage pipe. The length of the common pipe must correspond with the size and number of existing units.

5.7.1.5 Hanging the interior unit

Mount the unit as shown in the figure. Parts supplied by the installer:

- Rod, nut and washer.





5.8- INSTALLATION OF THE OUTDOOR UNIT

5.8.1 SELECTING THE ASSEMBLY PLACE FOR THE OUTDOOR UNIT

- **1** The outdoor unit can only be mounted outdoors, never within buildings.
- **2** If possible, choose a place of assembly away from direct solar radiation.
- 3 The assembly base must support the weight of the outdoor unit and allow for assembly in horizontal position. Moreover, it must be sufficiently solid as to prevent vibrations.
- 4 The envisaged place of installation must fulfil all the minimum distances required with regards to adjacent buildings, in order to guarantee optimum performance by the equipment.

- 5 Ensure that neighbours are not affected by operation noise or air currents.
- **6** In rented premises or dwellings, request consent from the owner.
- 7 The place of assembly must be free of flammable or easily combustible substances or gases, and of intense dust formation.
- **8** Respect the minimum distances.
- **9** Take local regulations into consideration when selecting the location.

5.8.2 CONNECTION OF THE REFRIGERANT PIPES

- Mount the outdoor unit in the envisaged location.
- **2** Remove the protection caps of the outdoor unit refrigerant connections.
- 3 Carefully bend the installation pipe towards the outdoor unit. (Attention: Do not strangle the pipe!). Cut the pipes, leaving sufficient length as to join with the outdoor unit connections.
- 4 Complete to the bellmouth connection in the installed refrigerant pipe.

5 Correctly isolate the refrigerant pipes. To this end, cover the possible isolation cut-offs with isolation tape or isolate the unprotected refrigerant pipe with the corresponding isolation material used in the cooling technique.

NOTE!

Installation is more straightforward if we first connect the gas pipe.



5.9- HANDLING OF THE REFRIGERANT PIPES

5.9.1 INDICATIONS ON THE HANDLING OF THE REFRIGERANT PIPES

- 1 The refrigerating installation must be done with specific refrigerant pipes (ATTENTION! never for plumbing).
- 2 The pipes must be clean, dry and polished inside.
- **3** The isolation of the pipes must be done with specific isolation for refrigeration.
- 4 The distances of the pipes must always respect the maximums and minimums for each model.
- 5 In as far as possible, avoid curves in the installations.
- 6 When welding is required, make sure to use strong welding with copper-silver alloy. During the welding process, there should be a dry nitrogen current in the interior of the pipes in order to prevent oxidation.
- 7 Take into consideration possible losses of load when bending the pipe. Trying to keep the radius as wide as possible.
- **8** Do not cut the refrigerant pipes with a metal-cutter saw; use a pipe cutter, keeping

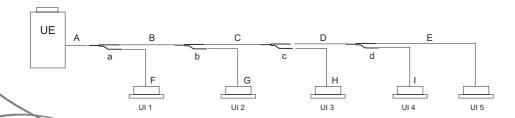
- the ends of the pipe covered at all times.
- 9 The bellmouth work must be carried out with great care in order to prevent loss of gas in the pipes.
- 10 When reaming, keep the pipe opening facing downwards in order to prevent chippings entering the pipe.
- 11 Mount the connection pipes with care, preventing them from being displaced. Ensure that they cannot provoke traction between the joints.
- 12 Separate the refrigerant pipes (gas and liquid) from each other using high-density thermal isolation.
- 13 The bellmouth coupling must be secured carefully. The application of excessive force without correctly aligning the bellmouth cone and the cover nut may result in damage to the thread, meaning the joint might not be properly sealed.

5.9.2 SELECTING THE PIPE

5.9.2.1 Installation elements

The installation has 3 elements which must be separately analysed throughout:

- Main pipe: This is the pipe which joins the outdoor unit with each of the interior units (A, B, C, D)
- 2 Interior unit pipe: This is the pipe which joins the branch with each of the interior units (F, G, H, I, F)
- 3 Branch: This is the element through which the main pipe can fork and communicate with the interior unit (a, b, c, d)





5.9- HANDLING OF THE REFRIGERANT PIPES

5.9.2.2 Selecting the pipe diameter

The pipe section is determined by the installation element types:

- A Main pipe: There is an Outdoor Unit up to the first branch
- **B** Main pipe: There is another section from the first branch up to the last, which varies in accordance with the sum of the capacities of the interior units.
- **C** There is a final section, namely the pipe which goes from the branch to the interior unit, which is delimited by the diameter of the interior unit.

	Selecting the pipe						
	Outdoor Uni	t		10-150 MCDHO	10-280 MCDHO		
Main pipe	(A) Main pipe section, from the outdoor unit to the first branch						
	Liquid			3/8"	1/2"		
	Gas			3/4"	1 1/8"		
		between the other branches (sum of capacities from the interior unit n the outdoor unit)					
	Capacity	Cap < 16kW	Liquid	3/8"			
	(Cap)	Cap	Gas	3/4"			
	Capacity	ACIANA Come ocian	Liquid	-	1/2"		
	(Cap)	16kW≤ Cap≤ 28kW	Gas	-	1 1/8"		
Interior unit	(C) Pipe sect	tion of the branch to the Interior Unit					
pipe	Liquid	The diameter of	the pipe will be d	letermined by the	interior unit		
	Gas	(see the te	(see the technical specifications chart on page 36)				

5.9- HANDLING OF THE REFRIGERANT PIPES

5.9.2.3 Branches

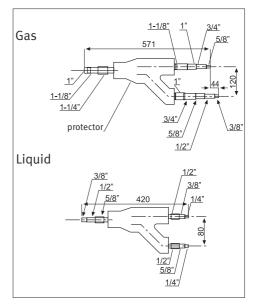
5.9.2.3.1 Description of the branches

There are two types of branches:

BRANCH N1 OUTDOOR UNIT 10-150 MCDHO - 10-280 MCDHO

3/4" 5/8' 1/2" Gas 3/8" 528 100 5/8" 3/4" 7/8 3/4" protector 3/8 5/8" 1/2" Liquid 1/2" 3/8" 3/8" 1/4' 420 1/4

BRANCH N2
OUTDOOR UNIT 10-280 MCDHO

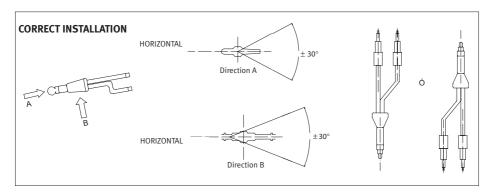


The branches are prepared as standard for use with any possible pipe diameter. In order to adapt them to the corresponding pipe diameter, the installer should simply cut the pipe, using appropriate tools, at the notch corresponding to the diameter to be used in the installation.

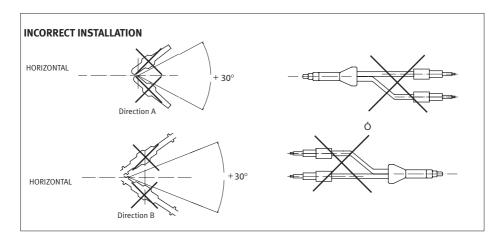
5.9- HANDLING OF THE REFRIGERANT PIPES

5.9.2.3.2 Installation of branches

The branches must be positioned SOLELY and EXCLUSIVELY in the manner described in the following figures. The liquid and gas pipes must be installed parallel to each other, either vertically or horizontally.



The system WILL NOT WORK correctly if installed on an incorrect angle or if one of the pipes (liquid or gas) is installed above the other.

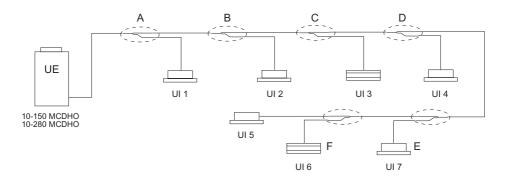


5.9- HANDLING OF THE REFRIGERANT PIPES

5.9.2.3.3 Selecting the branches

Branch	Interior unit total capacity (calculated beginning from the last interior unit)	OU
N1 (*)	Cap < 16 kW	10-150 MCDHO
N2 (*)	16 kW ≤ Cap ≤ 29 kW	10-280 MCDHO

- (*) The branches must be purchased separately as an accessory. See the Saunier Duval accessories catalogue.
- There are two branches: N1 and N2. All installations using model 10-150 MCDHO must use branch N1
- With model 10-280 MCDHO we should use branch type N2.



10-150 MCDHO

Branch	Type of branch
F	
E	
D	N1
С	IN1
В	
А	

10-280 MCDHO

Branch	Type of branch
F	
E	
D	N2
С	IN2
В	
A	

- In order to reduce the pipe diameter in the main piping, with model 10-280 MCDHO, it is also possible to combine branch N1. The last 16 kW of the installation may be connected to branch type N1, but from this point on, through to the outdoor unit, connection should be with branch N2.

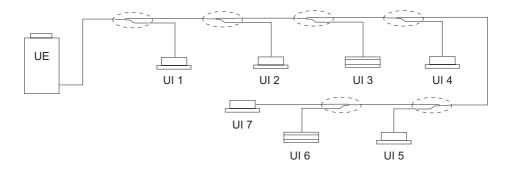
5.9- HANDLING OF THE REFRIGERANT PIPES

Branch	Sum of capacities	Interval	Type of branch
F	3,5 + 2,5 = 6	Cap < 16 kW	
E	6 + 5 =11	Cap < 16 kW	N1
D	11 + 3,5 = 14,5	Cap < 16 kW	
С	14,5 + 3,5 = 18	16 kW ≤ Cap ≤ 28 kW	
В	18 + 4,5 = 22,5	16 kW ≤ Cap ≤ 28 kW	N2
Α	22,5 + 4,5 = 27	16 kW ≤ Cap ≤ 28 kW	

IMPORTANT!

If we use N1 type branch for model 10-280 MCDHO, in no case may the total length of pipe connected from the outdoor unit to the first branch exceed 60 m. If this rule is not respected, we could face problems with oil returning in the system, causing damage to the compressor.

5.9.2.4 Connection of the gas/liquid pipe to the refrigerating circuit system



- The connections with the joints must be completed for each interior unit.
- Using the gas joint, join the gas pipes to the interior unit and branch off to join the next interior unit, as shown in the figure above.
- Using the liquid joint, join the liquid pipes to the expansion valve and connect to the interior. Branch off to the other joint outlet, as shown in the diagram above.

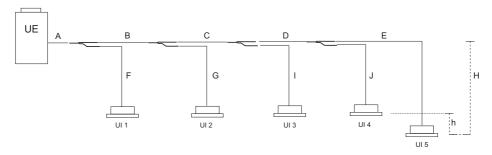
IMPORTANT!

- Do not join the liquid pipe to the expansion valve, otherwise the machine will not work.
- Do not connect the liquid pipe to the gas pipe, or vice versa, otherwise the machine will not work.



5.9- HANDLING OF THE REFRIGERANT PIPES

5.9.2.5 Maximum pipe length and height



			U	U	
			10-150 MCDHO	10-280 MCDHO	Pipe
Distance	Maximum	total distance (m)	100	250	A-B-C-D-E-F-G-I-J
(m)	Equivalent maximum distance		70	175	A-B-C-D-E
	Max dist from the first branch to the last IU		20	40	B-C-D-E
Difference	Max. difference	IU under OU	20	50	Н
of level (m)	of level between the IU and OU	OU under IU	20	30	Н
	Maximum differen	ce of level between IU and IU	8	15	h

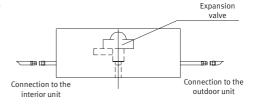
Equivalent distance: Includes the length of the branches with an estimate of o.5 m per branch. **Maximum total distance:** Excludes the length of the branches from the global calculation.

5.9.3 EXPANSION SYSTEM

- 1 The wall mounted interior unit models are not equipped with the expansion system connected, since there is no space for the installation in the interior of the unit. For this reason, a location needs to be found for the expansion box.
- The conduct and cassette type interior units, on the other hand, have the expansion box connected.

IMPORTANT!

In no case must the distance between the interior unit and the expansion box exceed 5 m, as this would result in much worse performance.



The expansion valve box must be installed vertically



5.9- HANDLING OF THE REFRIGERANT PIPES

9.4 ADDITIONAL REFRIGERANT LOAD

Calculation process:

Calculate the refrigerant load in accordance with the real refrigerating distance and the number and type of branches.

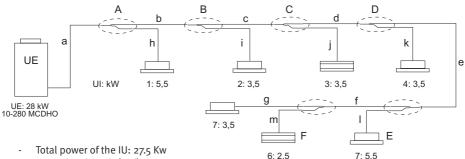
Additional load (kg) = $(L1 \times 0.030 \text{ kg/m}) + (L2 \times 0.065 \text{ kg/m}) + (L3 \times 0.115 \text{ kg/m}) + (N1 \times 0.032 \text{ kg}) + (N2 \times 0.032 \text{ kg})$

NOTE: Real refrigerated distance (for each type) = straight section lineal length + total curve lineal length.

Liquid pipe				
Diameter Length (m)		Refrigerant		
		necessary (kg/m)		
1/4"	L1	0,030		
3/8"	L2	0,065		
1/2"	L3	0,115		

	Liquid branch
Type of branch	Additional refrigerant (kg)
N1	0,032
N2	0,032

Example of additional load:



- Equivalent length (real): 174m
- Distance between the first branch and the last IU: 40m
- Number of branches: 6

Liquid pipe	a	b	С	d	е	f	g	h	i	j	k	l	m
Diameters	1/2"	1/2"	1/2"	3/8"	3/8"	3/8"	1/4"	3/8"	1/4"	1/4"	1/4"	3/8"	1/4"
Туре	L3	L3	L3	L2	L2	L2	L1	L2	L1	L1	L1	L2	L1
Distance (m)	60	10	4	5	7	9	5	8	15	14	10	17	10

(*) Only counting the liquid line

Type of pipe	L1	L2	L3
Total distance (m)	54	46	74

Branch	Α	В	С	D	E	F
Туре		N2		N1		
Quantity		3			3	

 $(54 \times 0.030 \text{ kg/m}) + (46 \times 0.065 \text{ kg/m}) + (74 \times 0.115 \text{ kg/m}) + (3 \times 0.032 \text{ kg}) + (3 \times 0.032 \text{ kg}) = 13.312 \text{ kg}$



5.9- HANDLING OF THE REFRIGERANT PIPES

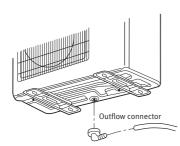
5.9.5 CONDENSED WATER CONNECTION IN THE OUTDOOR UNIT

NOTE! Only in outdoor units 10-150 MCDHO

- During the operation of the air-conditioning equipment, condensed water forms in the equipment, and this must be discharged.
- The condensed water can be discharged from the outdoor unit, e.g. using the supplied junction (1/2"), to a drain or outflow. The angle junction protrudes from underneath the equipment. For this reason, ensure that there is sufficient space underneath for assembly.
- 3 Insert the angle junction included in the supply in the corresponding orifice. This orifice is in the lower part of the exterior piece.

Then turn the angle 90° to set it.

- 4 After connecting the discharge pipe, check its operation by pouring water on the condensed water collection tray located to the rear of the exterior piece (only in outdoor units 10-150 MCDHO).
- 5 When appropriate, the condensed water outlet will be protected using thermal isolation to prevent freezing.

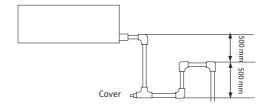


5.9- HANDLING OF THE REFRIGERANT PIPES

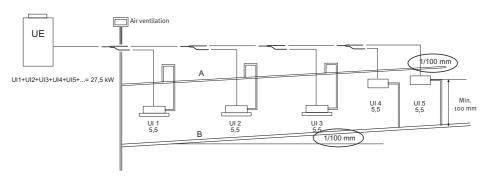
5.9.6 SELECTING THE OUTFLOW PIPE IN THE INTERIOR UNIT

- 1 The slope of the outflow pipe must be at least 1/100 (inclination > 1 cm of descent per metre covered).
- **2** The pipe should be kept as short as possible.
- 3 The drainage pipe must be installed before installing the interior units. The pipe diameter must not be less than that of the unit to which it is connected.
- 4 Units with different types of drainage must be installed with a different pipe.
- 5 In order to prevent smells, install a siphon in the interior unit; this is necessary if the pressure in the pipe connection is nega-

- tive. We also recommend installing an access point cover to facilitate the cleaning of the pipe.
- 6 In interior units equipped with a condensation pump (cassette type), in order to facilitate the subsequent outflow, the slope of the drainage pipe can be raised up to 340 mm.
- 7 If the interior units total less than 15 kW, we recommend using a diameter of at least 25 mm as a line. If the interior units total 15 kW or more, the diameter must be at least 30 mm.



Example of outflow:



Pipe	Total refrigerating power U.1	Condensation total U.1. (litre/hour)	Diameter (mm)	Refrigerating power U.I.	Condensation total U.1. (litre/hour)	Diameter (mm)
Α	16,5 kW	16	30	>15kW	>14	25
В	11,0 kW	10	25	<15kW	<14	30

(*) nemotechnical rule: Approx. 1 litre per kW of capacity



5.10- TECHNICAL SPECIFICATIONS

5.10.1 TECHNICAL SPECIFICATIONS OF THE INTERIOR UNITS

Interior Units		10-025 MCDHWI	10-035 MCDHWI	10-050 MCDHWI	10-025 MCDHKI	10-035 MCDHKI
Power supply	V.Ph.Hz			230/1/50		
Cooling Capacity	kW	2,80	3,60	4,50	2,80	3,60
Heating Capacity	kW	2,93	3,96	4,84	2,93	3,96
Air Flow	m³/h	500/430/370	580/500/420	850/610/470	860/760/650	860/760/650
Sound Power Level	dB(A)	46/53/58	46/53/58	47/53/60	54	54
Sound Pressure Level	dB(A)	33/40/45	33/40/45	34/44/47	41	41
Dimensions HxLxD	mm	790 X 265 X 195	790 x 265 x 195	920 X 292 X 225	580 x 254 x 580	580 x 254 x 580
Panel Dimensions HxLxD	mm	-	-	-	650 x 30 x 650	650 x 30 x 650
Weight	Kg	11	11	15	21	21
Panel Weight	Kg	-	-	-	3	3
Pipe Connections L/G	inches	1/4" - 1/2"	1/4" - 1/2"	1/4" - 1/2"	1/4" - 1/2"	1/4" - 1/2"

Interior Units		10-060 MCDHKI	10-025 MCDHDI	10-035 MCDHDI	10-060 MCDHDI	10-075 MCDHDI
Power supply	V.Ph.Hz			230/1/50		
Cooling Capacity	kW	5,60	2,80	3,60	7,10	8,00
Heating Capacity	kW	5,80	2,93	3,96	7,90	9,09
Air Flow	m³/h	1010/920/841	580/490/420	580/490/420	1140/1030/1000	1140/1030/1000
Sound Power Level	dB(A)	55	50	50	56	60
Sound Pressure Level	dB(A)	43	37	37	43	45
Dimensions HxLxD	mm	840 x 240 x 840	870 X 210 X 380	870 X 210 X 380	1000 X 298 X 800	1000 X 298 X 800
Panel Dimensions HxLxD	mm	950 x 40 x 950	-	-	-	-
Weight	Kg	25	15	15	38	38
Panel Weight	Kg	6		-	-	-
Pipe Connections L/G	inches	3/8" - 5/8"	1/4" - 1/2"	1/4" - 1/2"	3/8" - 5/8"	3/8" - 5/8"

NOTE!

 Saunier Duval, in line with its policy on continual improvements to its products, reserves the right to modify the specifications without prior notice.

5.10-TECHNICAL SPECIFICATIONS

5.10.2 TECHNICAL SPECIFICATIONS OF THE OUTDOOR UNITS

Outdoor units		10-150 MCDHO	10-280 MCDHO
Power supply	V.Ph.Hz	380	0/3/50
Cooling Capacity	kW	14,28	29,56
	Fg/h	12.282	25.423
Power Input	kW	5,03	10,52
Operating Current	А	8,50	15,90
	EER	2,84	2,81
Energy Level Class		С	С
Annual Consumption	kW/h	2.515	5.260
Heating Capacity	kW	16,36	33,84
	Kcal/h	14.072	29.104
Power Input	kW	5,02	10,54
Operating Current	А	8,20	15,60
	COP	3,26	3,21
Energy Level Class		С	С
Max Power Input	kW	7,75	12,50
Max Operating Current	А	12,00	21,00
Air Flow Volume	m³/h	6.000	10.000
Sound Power Level	dB(A)	66	70
Sound Pressure Level	dB(A)	51	55
Refrigerant		R-	410 A
Refrigerant charge heat pump	gr	4100	10000
Compressor type		Digital Scroll	1 digital scroll, 1 constant scroll
Expansion System		Electronic expansion va	alve (electronic throttle kit)
Electric Electronic Protections			of compressor, exterior pipe al electronic protections
Dimensions HxLxD	mm	1245X940X340	997x1830x880
Net Weight Heat Pump	Kg	110	245
Compressor Capacity	kW/h	14	32,2
Pipe Connection L/G	inches	3/8-3/4	1/2-1 1/8
Max Piping Lenght	m	70	175
Max Height IU under OU	m	20	50
Max Height OU under IU	m	20	30
Chargeless Lenght	m	0	0
Additional Charge per meter	gr	In accordance with	section 5.9 (page 125)

NOTE!

- Saunier Duval, in line with its policy on continual improvements to its products, reserves the right to modify the specifications without prior notice.



5.11- ELECTRICAL CONNECTION BETWEEN INDOOR UNIT & OUTDOOR UNIT

5.11.1 ELECTRICAL CONNECTIONS

5.11.1.1 Safety precautions

Danger of electrical discharge

- Before connecting the device to the electrical supply line, ensure that the line does not have tension.
- 2 If the connection cable is damaged, it should be replaced by the manufacturer, head of maintenance or other similarly qualified person.
- 3 Ensure that the power supply line is fitted with a main 2 or 4 pole circuit breaker, in line with the model (single phase or three phase), with a minimum distance of 3 mm between the contacts.
 - (Standard EN 60335-2-40).
- 4 Ensure the installation is protected against short circuits in order to prevent electrical discharges. This is a legal requirement.
- 5 Use an electrical plug which is properly suited to the electrical power supply cable.
- 6 Use cables in line with applicable local, national and international regulations on electrical installations.
- **7** Use only officially approved plugs and electricity supply cables.

Danger of incorrect operation and failuress

- **1** Dimensions of electrical cabling with sufficient capacity.
- 2 Compliance with Standard EN 61000-3-11: check that the nominal power of the main current connection per phase is >100.
- 3 Ensure that the electrical tension supplied is between 90% and 110% of the nominal tension.
- 4 Install the device in such a manner as the electrical connection is easily accessible. In this manner, the device can be quickly unplugged in the case of need.

5.11.2 Electrical connection of the conducts unit

- Remove the existing protection cover in front of the electrical connections of the outdoor unit.
- 2 Loosen the screws in the terminal block and completely insert the power supply line cables in the terminal block, then tighten the screws.
- **3** Secure the installed cable with the contraction device of the outdoor unit.
- 4 Correct that the cables are properly secured and connected.
- Mount the cable protection cover.

Danger of incorrect operation and failures

- 1 If the printed circuit card fuse is defective, replace it using type T.25A/250V.
- 2 Danger of incorrect operation and failures through water penetration. Mount the electrical cable underneath the connection terminals with a cable loop to prevent the penetration of water.
- 3 Danger of incorrect operation and failures through short-circuiting. Isolate the unused cable wires with isolation tape and ensure that they cannot come into contact with low tension parts.

5.11- ELECTRICAL CONNECTION BETWEEN INDOOR UNIT & OUTDOOR UNIT

5.11.3 ELECTRICAL CONNECTION OF THE WALL MOUNTED INTERIOR UNIT

5.11.3.1 Extracting the cable cover

- Open the front cover of the interior unit by pulling it forward.
- **2** Remove the cable cover from the right section of the frame by unscrewing it.



5.11.3.2 Electrical connection with the mounted interior unit

- Insert the cable from the outdoor through the interior unit orifice, where the refrigerant pipe connection is already found.
- Pull the electrical conduct forward from the rear part of the interior unit through the orifice included for this purpose. Connect the cables in the interior unit terminal strip as shown in the corresponding connections diagram.
- 3 Correct that the cables are properly secured and connected. Then mount the cable cover.

5.11.3.3 Electrical connection prior to the assembly of the interior unit

- In the electrical connection of the interior unit we can also use the frame orifice for refrigerant pipes.
- 2 Should the electrical supply be produced from another part of the interior unit frame, carefully break open the orifice on the cover using a set of pliers.
- 3 Pull the electrical conduct forward from the rear part of the interior unit through the orifice included for this purpose. Connect the interior unit terminal strip line as shown in the corresponding connections diagram.

4 Correct that the cables are properly secured and connected. Then mount the cable cover.

5.11.4 ELECTRICAL CONNECTION OF THE CASSETTE INTERIOR UNIT

5.11.4.1 Electrical connection with the mounted interior unit

- Insert the cable from the outdoor through the interior unit orifice, where the refrigerant pipe connection is already found.
- Pull the electrical conduct forward from the rear part of the interior unit through the orifice included for this purpose. Connect the cables in the interior unit terminal strip as shown in the corresponding connections diagram.
- 3 Correct that the cables are properly secured and connected. Then mount the cable cover.

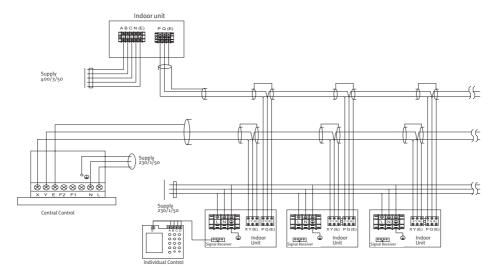
5.11.4.2 Electrical connection prior to the assembly of the interior unit

- In the electrical connection of the interior unit we can also use the frame orifice for refrigerant pipes.
- 2 Should the electrical supply be produced from another part of the interior unit frame, carefully break open the orifice on the cover using a set of pliers.
- 3 Pull the electrical conduct forward from the rear part of the interior unit through the orifice included for this purpose. Connect the interior unit terminal strip line as shown in the corresponding connections diagram.
- 4 Correct that the cables are properly secured and connected. Then mount the cable cover.



5.11- ELECTRICAL CONNECTION BETWEEN INDOOR UNIT & OUTDOOR UNIT

5.11.5 ELECTRICAL CONNECTIONS



(*) For the correct operation of the installation, follow the electrical connections diagram above, using, between the P-Q-E inputs of each of the interior units with the outdoor unit, a screened 2-wire cable, correctly earthed. If not, the machine will not work.

ATTENTION!

The installation of the power supply line must be equipped with a 2 or 4 pole circuit breaker, depending on the model (single phase/three-phase), with a minimum distance of 3 mm between the contacts (Standard EN 60335-2-40).

5.11- ELECTRICAL CONNECTION BETWEEN INDOOR UNIT & OUTDOOR UNIT

5.11.5.2 Power supply

MODEL	Voltage	Supply section	Interconnection section	Magnetothermic circuit breaker type D	Immediate residual current protector
10-150 MCDHO	400/3/50 Hz	4	-	16	0,03 A
10-280 MCDHO	400/3/50 Hz	6	-	25	0,03 A
10-025 MCDHWI	230/1/50 Hz	-	1,5	-	-
10-035 MCDHWI	230/1/50 Hz	-	1,5	-	-
10-050 MCDHWI	230/1/50 Hz	-	1,5	-	-
10-025 MCDHKI	230/1/50 Hz	-	1,5	-	-
10-035 MCDHKI	230/1/50 Hz	-	1,5	-	-
10-060 MCDHKI	230/1/50 Hz	-	1,5	-	-
10-025 MCDHDI	230/1/50 Hz	-	1,5	-	-
10-035 MCDHDI	230/1/50 Hz	-	1,5	-	-
10-060 MCDHDI	230/1/50 Hz	-	1,5	-	-
10-075 MCDHDI	230/1/50 Hz	-	1,5	-	-

5.12.6 WARNINGS ON CONNECTIONS

- If the connection cable is damaged, it should be replaced by the manufacturer, head of maintenance or other similarly qualified person.
- 2 If the printed circuit card fuse is defective, replace it using type T.3.15A/25oV.
- 3 The cabling must respond to national and international regulations on electrical installations.

NOTE!

When connecting the cable, ensure that the designation of the terminals of the interior and outdoor units are correct in accordance with the connections diagram. An incorrect connection may cause the appearance of failures during the starting up or operation of the air-conditioning equipment. Mount the electrical cable underneath the connection terminals with a cable loop to prevent the penetration of water.

Isolate the unused cable wires with isolation tape and ensure that they cannot come into contact with low tension parts.

- 4 In order to fulfil Standard EN 61000-3-11, check that the nominal power of the main current connection per phase is >100.
- 5 The electrical cabling must be properly sized.

- It is a legal requirement that the places of installation are equipped with short-circuit protection to prevent electrical discharges.
- **6** The electrical tension must be between 90% and 110% of the nominal tension.

Comment with regards to EC Directive 89/336

In order to prevent electromagnetic interferences which may come about during the starting up of the compressor, it is necessary to follow the installation conditions below.

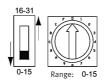
- The electrical power supply connection of the air-conditioning equipment must be carried out in the switchboard. The distribution must be done with low impedance. Normally the required impedance is reached in the fusion point at 32 A.
- **2** Do not connect any other equipment to this electrical power supply line.
- 3 In order to obtain more information and details with regards to the electrical installation, consult the technical connection conditions of your electrical company.
- 4 In order to obtain more information regarding the electrical details of your airconditioning equipment, check the product characteristics plate.

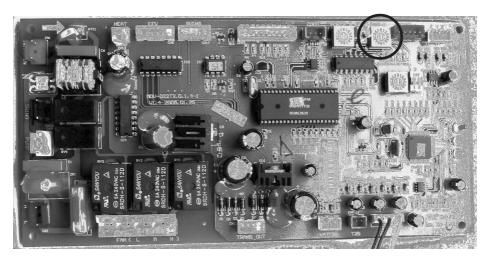


5.12- ADDRESSING THE UNITS

5.12.1 CONFIGURATION OF IDENTIFICATION BETWEEN INTERIOR UNITS -OUTDOOR UNIT

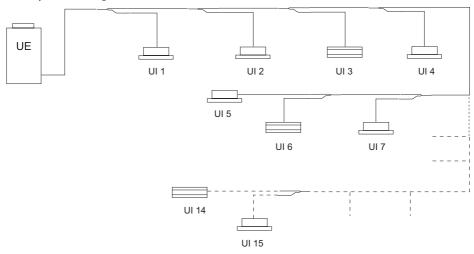
- 1 The plate is in the rear section of the interior units.
- 2 The configuration range is 0-31 (although the refrigerating possibility is only up to 16 units).
- 3 In order for the outdoor unit to recognise each of the interior units, it is essential to specify an addressing code for each of the same. This is done using the plate switch of each interior unit, as specified in the following image.





5.12- ADDRESSING THE UNITS

Example of directing:

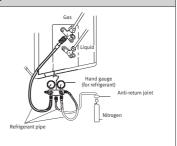


INDOOR UNIT	CONFIGURATION	INDOOR UNIT	CONFIGURATION
Circuit breaker position for units 1-16	Range: 16-31 Range: 0-15	UI 6	96-31
UI 1	0-15	UI	0-15
UI 2	6-15	UI 15	6-15
UI3	16-31 0-15	UI 16	0-15
UI 4	0-15	Circuit breaker position for units 17-32	6-15
UI 5	16-31		

5.13- STARTING UP: EMPTYING AND CHECKING FOR LEAKS

1.- CHECKING FOR LEAKS

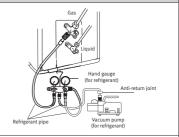
Connect a hand gauge bridge (service cocks) to the service valve of the gas pipe. Connect a nitrogen canister on the low pressure side of the hand gauge bridge. Carefully open the valves corresponding to the service cocks and place the system under the pressure recommended in the chart in the diagram on the right, in accordance with the refrigerant being handled. Check the seal tightness of all connections and joints. If necessary, correct the connections and joints. After the pressure test, close all the valves on the hand gauge bridge and withdraw the nitrogen canister. Reduce the system pressure, slowly opening the service cocks.



R-410A 40 bar(g) - 10/min

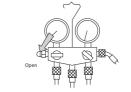
2.- EMPTYING THE INSTALLATION

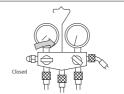
Connect the vacuum pump to the hand gauge bridge. All the service cocks must remain closed! Start-up the vacuum pump and open the vacuum valve and the combined hand gauge "Low" valve. The pump will now empty the installation. Connect the vacuum pump and open the "Low" valve of the hand gauge bridge and the gas cock. Ensure that the "HIGH" valve is closed.



Leave the vacuum pump operating for at least 15 minutes, depending on the size of the equipment. Check the low pressure hand gauge needle. This should show a value of o.1MPa (-76 cm Hg). Once the process is complete, close the "Low" valve of the hand gauge bridge.

Disconnect the vacuum pump. Check the hand gauge bridge needle for approximately 10 - 15 minutes. If the pressure increases, this means there is a lack of seal tightness in the refrigerant circuit (this should have been detected in the leak detection process). In this case, check all the connections, joints, interior and outdoor pieces and service valves. Do not forget to then close the service cocks.



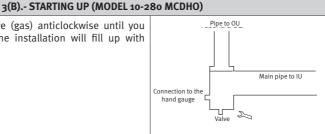


5.13- STARTING UP: EMPTYING AND CHECKING FOR LEAKS

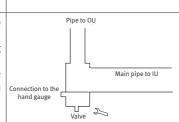
3(A) STARTING UP (MODEL 10-1	50 MCDHO)
Open the 2-way valve (gas), turning the spindle anticlockwise 90°. The installation will fill up with refrigerant. Close the 2-way valve (gas) after approx. 6 seconds. Once again check that the installation is tight sealed.	Service orifice 90°® during 60 seconds Gas Liquid Open 90°
Is there a gas leak? If there is, check the bellmouth connections.	Ifthe output of refrigerant has not been prevented, empty the installation by pump discharging the refrigerant. In order to do this, we require a vacuum pump and a recycling bottle. Never allow the refrigerant to affect the environment! Check or repair the non-tight sealed joint marked on the pipe system. Replace all non-tight sealed interior and exterior pieces. After the repair, refill the installation with the necessary refrigerant, using refrigerant scales. Then proceed to check for leaks as described above.
Withdraw the hand gauge bridge. Open the gas and liquid valves, turning the spindle anticlockwise until you feel the stopper.	Gas Liquid.
Close the gas and liquid valves with the corresponding protection caps.	Cas Liquid Liquid Tapón de émbolo de la válvula Valve piston cover Tapón del orificio de servicio Valve piston cover Tapón de válvula Valve piston cover Tapón de válvula Valve piston cover

5.13- STARTING UP: EMPTYING AND CHECKING FOR LEAKS

Turn the 3-way valve (gas) anticlockwise until you feel the stopper. The installation will fill up with refrigerant



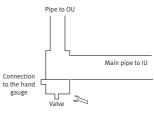
- Once again check the seal tightness of the installation:
 - a) If there is a gas leak, carry out the following operations:
 - Empty the installation by discharging the refrigerant through pumping (you will require a suction pump and a recycling bottle).
 - Check the bellmouth connections.
 - Repair the non-tight sealed point, and replace the non-tight sealed interior and exterior pieces.
 - Fill the installation with the necessary refrigerant.
 - Once again proceed to check for leakage.
 - b) If there are no gas leaks, continue with the installation.
- Then close the liquid and gas valves with the corresponding protection covers. In order to conclude, connect the device and put it in operation for a few moments, checking that it carries out all the functions properly.



ATTENTION!

In model 10-280 MCDHO, in order to add extra refrigerant load to the circuit, first follow these steps:

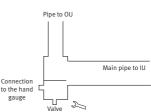
- a) Turn the 3-way valve anticlockwise until you feel the stopper.
- b) Turn clockwise, leaving the circuit open and ready to add the extra load.





HAZARD!

Once the final step of point "b" is complete, do not, under any circumstance, open cock A. This may result in refrigerant coming out and causing personal injury.





6.1- CONTROL SYSTEM

1. The control of outdoor four way valve

The four way valve is power off in cooling mode, power on in heating mode (except defrost mode), the action sequence in heating mode is following:

Digital scroll compressor operate 10s in unloading mode four way valve - power on normal capacity output



Compressor operate 5s in loading mode, then start the fixed speed compressor, the continue loading the digital scroll compressor 5s the compressor keep operate 2min

2. Defrost control

- 2.1. Defrosting Conditions (any of the following conditions is meet)
 - 2.1.1. The accumulated time up to 40 minutes when pipe temperature sensor T₃ (T₃ means the outdoor coil temperature), if compressor stop, time again.)
 - 2.1.2. Defrosting Action

Reserve the open degree of the indoor EXV (electronic expansion valve), then all the EXVS keep 480 degree in defrost period. When the defrost end, the EXV return to the reserved degree. When defrost, the four way valve power off, outdoor fan off, compressor keep running (digital

When defrost, the four way valve power off, outdoor fan off, compressor keep running (digital scroll compressor 100% output), indoor units operate in anti-cooling mode). If there has electrical heater, it will be power off at once.

- 2.1.3. Ending Action of Defrost (any the following conditions is met)
 - 2.1.3.1. Time of defrosting reaches 10 minutes.
 - 2.1.3.2. Temperature of outdoor coil T₃ is up to 20^oC.
- 2.1.4. After defrost, indoor units operate in anti-cooling mode.

NOTE: during defrost mode and 4 min after defrost, it won't check the low pressure.

3. Outdoor fan control

Outdoor fan has two speeds, outdoor fan and compressor start up at the same time, except defrost mode. The fan speed is controlled by the outdoor temperature:

- 3.1. Cooling: when T4>27°C, outdoor fan operate in high speed; T4=or <25°C outdoor fan in low speed.
- 3.2. Heating, when T4 012°C, outdoor fan in high seed; when T4>14°C outdoor fan in low speed.

4. Mode conflict: heating mode has priority.

Please see detail in the following table.

	Cooling	Heating	Fan	Off
Cooling	No	Yes	No	No
Heating	Yes	No	Yes	No
Fan	No	Yes	No	No
Off	No	No	No	No



6.1- CONTROL SYSTEM

5. Oil return control.

- 5.1. In cooling mode, the system will carry out oil-return once every 240 minutes and last 3 minutes. During oil-return, for OFF indoor units and in FAN mode indoor units, the PMV opening degree is 300P, and for OFF states indoor units, the fan will run in weak speed.
- 5.2. In heating mode, the system will carry out oil-return once every 180 minutes and last 3 minutes. During oil-return, for OFF indoor units and in modeconfliction indoor units, the PMV opening degree is 480P, and the indoor fan will run in weak speed.

6. Force cooling.

There has a Force Cooling button in outdoor pc, if press it, it will turn to force cooling mode, and all the indoor units will be in cooling mode. And outdoor unit in digital scroll compressor 70% output and fixed speed compressor in 100% output. The EXV of indoor units keep 300 steps, the indoor fan in high speed. Press it again, it will exit force cooling mode.

7. Discharge temperature protection

If the discharge temperature > 140° C, the system will be stopped. If the temperature between 125° C and 140° C, the output capacity will be decreased. If the temperature less the 125° C, it will operate in normal condition.

8. The control of high pressure switch, low pressure switch.

When the pressure more than 3.3MPa, the high pressure switch will be cut off, when the pressure less than 2.4MPa, it will recover.

When the pressure less than 0.05MPa, the high pressure switch be cut off, when the pressure more than 0.15MPa, it will recover.

When the protection occur, the compressor be stopped and restart after 3 min.

Current protection of compressor outdoor PCB checks the compressor current, and carry out the protection.

If the current of the digital scroll compressor more than 18A or the current of the fixed speed compressor more than 18A, the system will be off, outdoor and all the indoor units display the error code.

NOTE:

- It will start to check the current when 10s after the compressor started for preventing the protection caused by high start current.
- 2. When the protection occur, the compressor be stopped and restart after 3 min.

10. The communication protection between indoor and outdoor.

If the PCB does not receive the communication time up to 2 min, the indoor will be turn off, if the communication recovered, the indoor will be restarted.

11. Outdoor coil high temperature protection

Cooling mode:

When T₃) 65°C up to 3s, turn off the compressor, the outdoor fan and indoor fan keep running; T₃ (52°C, unchain the protection and the compressor will restart after 3 min.

NOTE: we won't be responsible for the upper updating of the control of the system.



6.1- CONTROL SYSTEM

NOTE: we won't be responsible for the upper updating of the control of the system.

1. Indoor fan.

High, mid, low speed. Breeze speed for anti-cold air.

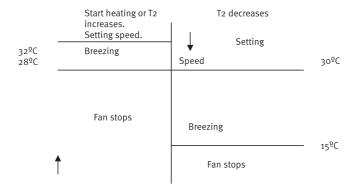
2. Heating Mode

Indoor fan action

- 2.1. Anytime remote switchover for fan speed among high/ mid/ low, (anti-cold air function with breeze)
- 2.2. Fan swing function is controlled by the ON/ OFF signal.
- 3. Mode conflict: heating mode is priority.

	Cooling mode	Heating mode	Fan mode	OFF
Cooling mode	No	Yes	No	No
Heating mode	Yes	No	Yes	No
Fan mode	No	Yes	No	No
OFF	No	No	No	No

4. Anti-cold air function: the function is only valid in the heating mode, in the anti-cold air function, the fan speed is controlled by the temperature, see the picture below.



T2: the temperature in the middle of evaporator.



6.1- CONTROL SYSTEM

5. Display in LED

When the malfunction occur, the LED display:

Malfunction	Display	
Communication error between indoor and outdoor	LED timer flash.	
Indoor temperature sensor error	LED operation flash.	
Water level alarm error	LED alarm flash.	
Mode conflict error	LED defrosts flash.	

5.1 Operation lamp

After the unit is on, the lamp will keep on.

After the unit is off, the lamp will be off.

5.2. Timer lamp.

During timer operation, it will be on.

5.3. Defrosting/ Pre-Heating lamp.

When it performs defrosting or anti-cold air, it will be on.

6. Drain pump and water level switch.

The action of the water pump is controlled by water level switch.

- 6.1. Control procedures (check water level every 5 seconds).
- 6.2. When entering cooling mode, condenser starts at once and operates continue until the above modes stop.

7. Timer function

Timer function is valid with the max resolving ability 15 minutes and the longest period of 24 hours.

NOTE: We won't be responsible for the upper updating of the control of the system.

Instruction of temperature sensor:

- T1: Ambient temperature sensor is used to compare to the setting temperature and judge and decide the open degree of EXV and decide the output capacity (for indoor units every indoor unit has a T2 temperature sensor.)
- T2: Middle temperature sensor of evaporator, is used to modify the open degree of indoor unit EXV compared to the average temperature of T2 (for indoor units every indoor unit have a T2 temperature sensor). Available in cooling mode. T2B: Outlet temperature of evaporator, is used to modify the open degree of indoor unit EXV compared to the average temperature of T2B (for indoor units every indoor unit have a T2B temperature sensor). Available in heating mode.
- **T3:** Outlet temperature of main unit condenser (in cooling mode), is used to judge whether the system should to operate defrosting program a judge whether should be stop the defrosting program.
- **T3:** Outlet temperature of auxiliary1 unit condenser (in cooling mode), is used to judge whether the system should to operate defrosting program and judge whether should be stop the defrosting program.
- **T4:** Outdoor ambient temperature, it has two functions: a. to adjust the speed of outdoor fan motor; b. to modify the output of system.



6.1- CONTROL SYSTEM

- **T6:** The inlet temperature of auxiliary unit condenser is used to adjust the opening degree of outdoor unit EXV by compared to the average temperature of T6, T6′, T6′′ (if all of the units operate).
- **T6**: The inlet temperature of auxiliary unit condenser is used to adjust the opening degree of outdoor unit EXV by compared to the average temperature of T6, T6, T6, T6 (if all of the units operate.

Instruction of other important components:

- **A. Compressor:** Adopts the Copeland (in USA) Digital scroll compressor and controls the output capacity range from 10% to 100% steeples capacity modulation.
- **B. High-pressure accumulator:** In the partial load, the excrescent refrigerant will be storage in this equipment and decrease the load and power input.
- C. Low-pressure accumulator: In the partial load, the excrescent refrigerant will be storage in this equipment and decrease the load and power input.
- D. Four-way valve: It is only available for cooling and heating system and change the refrigerant flow direction.
- E. Check valve: Prevents the refrigerant return back to the compressor and damaged the compressor.
- **F. Electronic expansion valve:** It is only available in heating mode to control system's superheating and function as a capillary tube to decrease the refrigerant pressure and function as throttle.
- G. Electronic expansion valve: According to the capacity requirement of indoor unit adjust the refrigerant flow volume.
- **H. High-pressure switch:** Switches trip when preset pressure exceeds 3.3 +- 0.1 MPa, thus stopping operation.
- Low-Pressure switch: Switch trip the suction pressure is lower than 0.15+0.1MPa, thus stopping operation.
- J. Oil separator: Device that collected oil discharged from the compressor and returns it to the compressor via oil return capillary. Also function as reservoir for holding exceeds oil.
- **K.** Oil return capillary: Function as a way for discharged oil return to the compressor.
- **L. Outdoor heat exchanger:** Exchange the heat with outdoors ambient.
- M. Indoor heat exchanger: Exchange the heat with indoor ambient.
- N. Muffle and Filter: Decrease the noise and avoid other things blocked the indoor unit EXV.
- **O. Gas balance pipe:** In the top of compressors to balance the suction pressure and guarantee every compressor in the same system have the same refrigerant volumes.
- P. Oil balance pipe: In the bottom of compressor to balance the oil level of every compressor in system.
- **Q.** Check valve: It is only available in cooling mode to form a refrigerant loop.
- **R. Fixed compressor:** On/off according to the capacity requirement of total indoor units.
- **S.** Liquid balance pipe: Function as the balance of distribution of refrigerant.

Solenoid valve A: Function as cut down one of the refrigerant circuits.

Solenoid valve B: Provides hot gas bypass to prevent low pressure from dropping radically for excessive defrost of load reduction when the compressor starts.

Solenoid valve C: Function as cut down one of the refrigerant circuits.

Solenoid valve D: Provides hot gas bypass to prevent low pressure from dropping radically for excessive defrost of load reduction when the compressor starts.

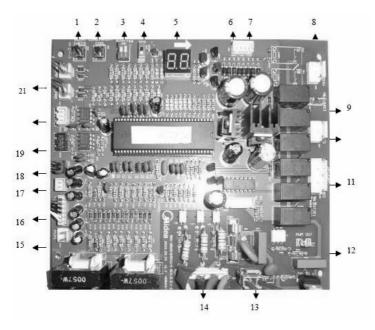
Solenoid valve E: Function as cut down one of the refrigerant circuits.

Solenoid valve F: Provides hot gas bypass to prevent low pressure from dropping radically for excessive defrost of load reduction when the compressor starts.

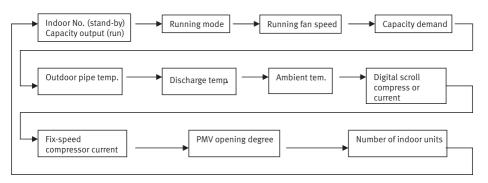


6.1- CONTROL SYSTEM

Outdoor electric control board



1. Check the check procedure as dollows:



6.1- CONTROL SYSTEM

- Forced cooling: After pressing this button, the indoor and outdoor units start, and indoor/ outdoor fan and EXV open at a fixed degree. Normally it is not used.
- 3. Address dial switch
- 4. 20HP or 30HP selection dial switch.
- Outdoor digital pipe, display numbers of indoor units at standing-by state. When compressor is running, display capacity demand. When defrosting, display "DF". When malfunction happen, display malfunction code.
- 6. Outdoor EXV.
- 7. Transformer output. Two 16V AC is to supply power for outdoor control board. One circuit is to provide +5V DC power for main chip and periphery circuit. Another circuit is to provide +12V DC power for 2003 and relay through 7812.
- 8. Outdoor High/Low fan speed. Using 12V DC to drive relay to output 220V AC.
- 9. Connect to the fix-speed compressor of auxiliary unit or main unit. This port is the result of universal design, and also this PCB can use for the auxiliary unit and main unit. So, in the main unit, this port also uses to control the fixed-speed compressor.
- 10. U.V: One-way stop Valve, used to cut down system.

 C.V: Spray-liquid cooling valve. This valve is controlled by the max. Discharge temperature of two compressors. When the max. value is higher than 105°C, the valve opens. When the discharge temperature is up to 125°C, two compressors close. When the discharge temperature is less than 90°C, two compressors restart again. It is 220V output.
- 11. S.V: System Four-way valve.220V output.
- 12. PWM OUT. Modulate the digital scroll compressor capacity. 13. Transformer input, 220V AC.
- **14.** Three-phase power A, B, C, N, input. Check three-phase power supply when power on.
- Digital scroll compressor discharge temperature sensor. It is used to control Liquid-spray cooling valve. Don't connect it in case of auxiliary outdoor unit.
- 16. T4: temperature sensor of outdoors ambient. It is used to check outdoor ambient temperature to control outdoor fan speed.
 - T3 (I)/ T3 (O): Condenser inlet/ outlet temperature sensor. T3(O): To control defrosting. T3(I): To control outdoor EXV to modulate outdoor refrigerant volume.
- 17. Fix-speed compressor 2 discharge temperature sensor. It is used to control liquid-spray cooling valve. Don't connect it in case of main outdoor unit.
- **18.** Fix-speed compressor 2 discharge temperature sensor. It is used to control liquid-spray cooling valve.
- 19. Inter-communication between outdoor units, RS-485 signal.
- **20.** Inter-communication between indoor/outdoor units, RS-485 signal. The digital pipe will display "E2" malfunction when the indoor and outdoor units can not communicate for 1 minute.
- 21. System high/low pressure protection input. Check with +5V weak electric signal.

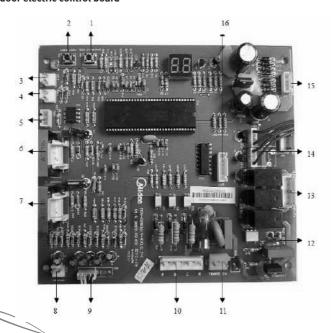


6.1- CONTROL SYSTEM

Malfunction Code of Outdoor unit

Display	Malfunction or protection
Eo	Communication malfunction between outdoor units
E1	Phase sequence error
E2	Communication malfunction between indoor/outdoor units
E3	T3 temperature sensor malfunction
E4	T4 temperature sensor malfunction
E ₅	T5 temperature sensor malfunction
E6	Water-level alarm malfunction
E ₇	T6 temperature sensor malfunction
E8	Address malfunction of outdoor unit
P1	High pressure protection
P ₂	Low pressure protection
P3	Compressor current protection
P4	Compressor discharge temperature protection
P ₅	Condenser high temperature protection

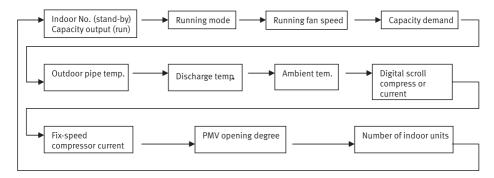
Outdoor electric control board



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6.1- CONTROL SYSTEM

 Forced cooling: After pressing this button, the indoor and outdoor units start, and indoor/outdoor fan and EXV open at a fixed degree. Normally it is not used. 2. Check, the check procedure is as follows:



- 3. CN14, low pressure protection (L-PRO), check with +5V weak electric signal;
- 4. CN13, low pressure protection (L-PRO), check with +5V weak electric signal;
- CN12, inter-communication between indoor and outdoor units, RS-485 signal (COM). The digital
 pipe will display "E2" malfunction when the indoor and outdoor units can not communicate for
 1 minute.
- **6.** Current protector, the one-phase current of fixed-speed compressor will pass this current protector and when the current is more than 16A, it will cut the power supply immediately to protect the compressor.
- 7. Current protector, the one-phase current of fixed-speed compressor will pass this current protector and when the current is more than 16A, it will cut the power supply immediately to protect the compressor.
- 8. CN11, discharge temperature sensor of digital compressor (COM.PIPE), which inside in the digital compressor, the relevant temperature to sensor please sees the appendix 2. If the discharge temperature is more than 140°C, the compressor and all If the system will stop and restart until the malfunction is eliminated.
- 9. CN6, three-phase power supply input, only check the phase-sequence or losssequence for the first time power on. The digital pipe display"E1" when first power on, the system will recover until there is no phase-sequence or losssequence occur. If there is no phase-sequence or loss-sequence occur for the first power on, the system will not check the phase-sequence or loss-sequence until power on over again.
- 10. CN5, transformer input (TRANS IN), 220V input.
- **11.** CN4, PWM OUT. Modulate the digital scroll compressor capacity.
- CN3, output the control signal to control the four-way valve, digital scroll and fixed-speed compressor, 220V output.
- 13. CN2 outdoor high/low fan speed. Using 12V DC to drive relay to output 220V AC.
- 14. CN1 transformer output.
- 15. CN15 outdoor EXV



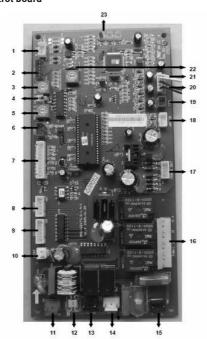
6.1- CONTROL SYSTEM

When power on for the first time, the EXV will close totally then open 350p staying in the waiting and open to a fixed degree according to the requirement after the compressor operated.

Malfunction code of outdoor unit

Display	Malfunction or protection
E1	Phase sequence error
E2	Communication malfunction between indoor/outdoor units
E3	T ₃ temperature sensor malfunction
E4	T4 temperature sensor malfunction
E ₅	T5 temperature sensor malfunction
E6	Water-level alarm malfunction
P1	High pressure protection
P2	Low pressure protection
P3	Compressor current protection
P4	Compressor discharge temperature protection
P ₅	Condenser high temperature protection

Indoor electric control board



6.1- CONTROL SYSTEM

- EXY (NET) Net control socket
 X, Y, E of all air- conditioners are connected together in Bus to the X, Y, E of CCM.
- 2. CN15 (ENC2) Number setting port from outside It has same function as ENC2(NUM_S) – number setting (for outdoor), the difference is that it is suitable for some special indoor unit such as one-way cassette (compact), which has no enough space to operate ENC2 (NUM_S) – number setting (for outdoor), so we support this port to extend number setting switch outside.
- 3. ENC2 (NUM_S)- number setting (for outdoor)

 The present address setting has been put outside the electric control board for convenient setting. The range is o-F. Before indoor units are power on, the address setting must be finished and the address setting of indoor units that match with the same outdoor unit can not be repeated, or it may cause compressor jumping-down, indoor EXV can not open, indoor fan motor jumping-down, and so on. After finishing address setting, indoor units must be power on again and address setting must be checked again to ensure no repeated setting. The checking method is as follows: press the button on the display board for 5 seconds, the display board will display address setting, continue to press for 5 seconds, the display board will display power setting. The setting is as follows:

Operation	Timer lamp	Defrosting lamp	Alarm lamp	Communication address	Indoor HP
OFF	OFF	OFF	OFF	0	o.8HP
				0-15 16-31	
OFF	OFF	OFF	ON	1	1.0HP
OFF	OFF	ON	OFF	2	1.2HP
OFF	OFF	ON	ON	3	1.5HP
OFF	ON	OFF	OFF	4	2HP
OFF	ON	OFF	OFF	5	2.5HP
OFF	ON	ON	ON	6	3HP
OFF	ON	ON	OFF	7	3.2HP
ON	OFF	OFF	ON	8	4HP
ON	OFF	OFF	OFF	9	5HP
ON	OFF	ON	OFF	10	
ON	OFF	ON	ON	11	
ON	ON	OFF	OFF	12	
ON	ON	OFF	ON	13	
ON	ON	ON	OFF	14	
ON	ON	ON	ON	15	
OFF	OFF	OFF	OFF	16	o.8HP
OFF	OFF	OFF	Flash	17	1.0HP
OFF	OFF	Flash	OFF	18	1.2HP
OFF	OFF	Flash	Flash	19	1.5HP
OFF	Flash	OFF	OFF	20	2HP
OFF	Flash	OFF	Flash	21	2.5HP
OFF	Flash	Flash	OFF	22	3HP
OFF	Flash	Flash	Flash	23	3.2HP
Flash	OFF	OFF	OFF	24	4HP
Flash	OFF	OFF	Flash	25	5HP
Flash	OFF	Flash	OFF	26	

6.1- CONTROL SYSTEM

Operation	Timer lamp	Defrosting lamp	Alarm lamp	Communication address	Indoor HP
Flash	OFF	Flash	Flash	27	
Flash	Flash	OFF	OFF	28	
Flash	Flash	OFF	Flash	29	
Flash	Flash	Flash	OFF	30	
Flash	Flash	Flash	Flash	31	

- 4. SW1(0-15 OR 16-31) Number setting switch (for outdoor) Match with NUM_S, when switch down, number setting range is 0-15; when switch up, number setting range is 16-31.
- **5.** ENC1(POWER_S) Power setting

The range is o~9. In normal case, the power setting of indoor units has been set well. The matching capacity of indoor units is as follows:

Power setting	Capacity of indoor units
0	0.8 (2200W)
1	1.0 (2800W)
2	1.2 (3600W)
3	1.7 (4500W)
4	2.0 (5600W)
5	2.5 (7100W)
6	3.0 (8000W)
7	3.2 (9000W)
8	4.0 (11200W)
9	5.0 (14000W)

6. CN9 – Communication port (COM)

The indoor and outdoor units adopt RS-485 communication standard. P and Q are for communication and have polarity. E is shield layer and is connected to +5V on the display board to strengthen the anti-jamming ability of the communication wire. When the indoor and outdoor units can not communicate for 1 minute, it will display communication malfunction.

Indoor LED malfunction code

Display contents	Explanation of malfunction	
All lamps are off	Standing-by	
Operation lamp is on	ON	
PRE./DEF. lamp is on	Anti-cooling or defrosting	
Timer lamp is on	Timer function is on	
Timer lamp flashes	Indoor/outdoor communication malfunction	
Operation lamp flashes	Indoors temp. sensor abnormal	
Alarm lamp flashes quickly	Water-level switch abnormal	
DEF. lamp flashes	Mode-confliction malfunction	
Alarm lamp flashes slowly	Outdoor malfunction	

7. CN10 – Display board socket

The display board in digital scroll system is just to display running conditions and malfunction information. The manual button is just to check the address code and power code of indoor units.

8. CN14 - SWING



6.1- CONTROL SYSTEM

CN8 – Indoor EXV

12V weak-electricity control. After the compressor starts, the EXV of the matching indoor units under ON mode will be open at certain opening-degree and the EXV of the matching indoor units under OFF, standing-by, Fan mode or Mode confliction will be close.

When forced-cooling, all indoor EXV will be forced open.

The action of EXV can be seen from a 5-core or 6-core step-motor that is connected here to replace EXV.

- 10. CN12 Auxiliary electric-heater, 12V DC.
- 11. CN1 Transformed input socket (TRANS IN), 220V strong –electricity.

The power supply of 220V passes the fuse, anti-jamming inductance and PTC protector and the connects to the terminal in the PCB. 12. N – Zero-wire output socket.

Supply to indoor fan motor that needs separate zero-wire. 13. CN13 – SWING

Output 220V. Use 220V synchronization swing-motor. The action is as same as CN14 stepmotor.

14. CN3 - PUMP

220V output. When indoor unit starts to cooling operation, the pump starts at once and running continue until stopping this mode. At any time, if the water-level in the water receiver raises to the position point of the water-level switch, that is, the water-level switch signal is cut down, the pump will start at once and forced running. If the water level falls to below the alarm water-level (the drain pump delay 1 minute to be off), operation recovers according to former setting mode. On the otherwise, after 3 minutes, indoor unit stops (including pump) and display waterlevel alarm signal, and indoor unit takes part in the whole system operation according to standing-by mode. When again checking the water-level alarm signal is off, the protection will be released and recover operation according to former setting.

- 15. CN2 Power input 220 V (L, N)
- 16. CN4 Indoor fan output

220V output. There are four relays in the electric control board and four-speed output (High/ Middle/Low/breeze). The low speed and Breeze speed have been short-connected, and the indoor breeze speed have been deleted, so even the relay of breeze speed suck-in, the indoor fan motor still operates in Low speed. That is, all indoor units have only three fan speeds, even operate in Low speed in heating anticooling and oil-return period.

17. CN11 – transformer output (TRANS OUT)

16V AC output. Input 220V AC to transformer, the output 16V AC, and then input to the electric board. There are two commute filter circuits, one is 7805, output 5V to the chip, the other one is 7812, output 12V to 2003 and relays. 18. CN5 – Water-level switch (WATER)

Disconnect when full of water and be close when water level recovers normal. For indoor units without water-level switch, this switch needs be short connected. 19. CN7 – Evaporator outlet temp. (T2B)

- **20.** CN6 T1, T2
- 21. S2 Address setting (for CCM)

This setting presents the address relative to a CCM, match with S1 switch, the address rage is o-63, before using a CCM to group control indoor units or using Midea Intelligent Network Air-Condition Control & Monitor System to control indoor units, the address setting must be finished and the address setting of indoor units that match with the same CCM can not be repeated.

22. S1 – Address setting switch (for CCM)



6.1- CONTROL SYSTEM

Match with S2 – Address setting (for CCM), setting indoor unit address relative to a CCM.

in the second	Address Set	Address Code
	(C) ~	00 ~ 15
	(I) ~ (O)	16 ~ 31
60	(0) ~ (0)	32 ~ 47
88	0	48 ~ 63

- 23. LED's for intelligent A/C control and monitor system. From the left side:
 - LED1 (Run): when the AC communicated well with the NIM, it will be light; otherwise it will be extinguished. But when the system stayed in the remote controller lock mode and mode lock state, it will flash with frequency of 1 Hz.
 - LED 2 (Link): It will be light when there is any communication between the AC and intelligent A/C control and monitor system including any receiving and sending the signal.
 - LED 3 (ERR): It will flash with frequency of 1HZ when the communication malfunction occurs between the AC and intelligent A/C control and monitor system or other malfunctions come from the NIM. It will extinguish in normality.

6.2- CONTROLLERS

6.2.1- CENTRAL CONTROL

6.2.1.1- YOUR SAFETY



Danger!
Direct danger for life and health.



Danger!
Danger of electric shock.



Warning!

Potentially dangerous situation for the product and the environment.



Note!

Useful information and indications.

6.2.1.2- PROPER USE OF THE UNIT

Carefully read the following information for the correct handling of the air-conditioning equipment. Next we shall list different types of safety warnings and tips:

These devices must be installed and used in accordance with all refrigerating, electrical and mechanical facility regulations and standards applicable in the place where the equipment is to be installed.

Saunier Duval, in line with its policy on continual improvements to its products, reserves the right to modify the specifications without prior notice.

Saunier Duval cannot envisage all the possible circumstances which may involve potential risk.

The equipment has been designed and manufactured for climate control through air conditioning; the application of the same in other domestic or industrial uses shall be done under the sole responsibility of the person who projects, installs or uses the same.

Prior to any intervention involving the equipment (installation, starting up, use and maintenance), the staff in charge of such operations must be fully aware of the instructions and recommendations contained in the installation manual for the device.

Should anomalous phenomena be detected (e.g. smell of fumes), immediately disconnect the electrical power supply and contact the distributor, who shall proceed appropriately.

Any use of the air-conditioning equipment under these anomalous conditions may result in deterioration and cause a short-circuit or fire.

Never introduce fingers or other objects in the air inputs or outputs or in the slats whilst the air equipment is in operation, as the high speed of the ventilator may cause injury.

In the event of a leak of refrigerant gas, call out a specialist technician in order that he may take preventative measures. The leakage of refrigerant may, in certain amounts, cause loss of oxygen.

If the air-conditioning equipment is installed in a small room, ensure that the measures necessary to prevent any symptoms from lack of oxygen in the event of refrigerant leakage are taken.

If the equipment is withdrawn and later reinstalled, again check that the installation is correct. Failure to do this may generate water leaks, refrigerant leaks, short circuits and even fires.

Do not dismount the outdoor unit output. Exposition of the ventilator may be very hazardous.

We recommend regularly checking the base of the outdoor unit in order to detect possible deterioration; if a damaged base is not repaired, it may fall and cause accidents.

Never place any items on the outdoor unit.

Never handle the equipment with wet or damp hands, given the risk of electric shock.

Only use fuses suitable for each model. Never use wire or any other material to replace the fuse, as this may result in failure or fire.



6.2.1.2- PROPER USE OF THE UNIT

Never position any source of heat with a flame in the airflow of the equipment, and do not use sprays or other inflammable gases near to the air equipment, as this may cause fire.

The installation of the air equipment close to sources of heat, combustible or corrosive materials or an air connection mouth of an adjacent building is forbidden.

Remove the power supply in order to clean the equipment, thus avoiding the risk of short circuits or injury.

Do not clean the equipment with water.

Connect the earth cable to the appropriate line (not to the gas pipes, water, neutral or telephone line). Incorrect earthing may result in electrical hazards.

Connect the condensation pipe correctly in order to ensure efficient discharge. An incorrect connection of the pipe may cause water to leak.

Install differentials in order to prevent possible short-circuits.

Do not connect the equipment whilst using insecticides or pesticides. Toxic chemicals may become deposited on the air equipment and affect people who are allergic to chemical substances.

Prevent prolonged exposition to the cooling air and to extreme temperatures in the room. This may present a health hazard.

Never expose animals or plants directly to the airflow, as they may suffer damage or harm.

The staff in charge of the receipt of the equipment must carry out a visual control in order to check for any damage suffered during transit.

In order for its products to maintain optimal operation parameters, Saunier Duval recommends regular maintenance checks, carried out always by a qualified person. This service may be covered by the official Saunier Duval TAC, which can offer a personalised contract in line with your needs.

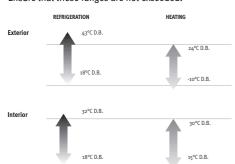
The refrigerating installation must be done with specific refrigerating pipes.



Warning! Never use plumbing pipes.

6.2.1.3- EXTREME OPERATING CONDITIONS

This air-conditioner has been designed for the following temperatures. Ensure that these ranges are not exceeded.



- (*) Range in the control: from 17°C to 30°C
- (*) Relative humidity: from RH40% to RH90%



6.2.1.4- RECOMMENDATIONS

Configure the appropriate interior temperature.

Both excessive heat and excessive cold can be detrimental to health. Select the temperature in which you feel most comfortable

Avoid direct exposure to the airflow for prolonged periods of time.

Keep the doors and windows firmly closed.

You will save energy and gain comfort.

The ventilation of the premises must be in line with that required in current legislation.

For this, use a specific ventilation system.

Indoor Design Conditions

Season	Operating Temperature °C	Average Air Speed m/s	Relative Humidity %
Summer	23 to 25	0.18 to 0.24 40 to 60	
Winter	20 to 23	0.15 to 0.2040 to 60	

Correctly set the airflow direction.

Normally configure the airflow in upward direction in the refrigeration modality, and in downward direction in the heating modality in order to obtain a uniform atmospheric temperature.

Clean the air filters regularly.

Dirty filters mean reduced efficiency, whilst generating unpleasant noise and wasting energy.

Do not block or cover the air input or output openings.

6.2.1.5- DESCRIPTION OF THE UNIT

Saunier Duval thanks you for acquiring this equipment. This product has, amongst others, the following characteristics:

- Compatibility with cassette, conducts and wall mounted interior units.
- Centralised control of up to 64 interior units.
- Programmable control with digital screen.
- Possibility of configuration and/or programming of the different units.

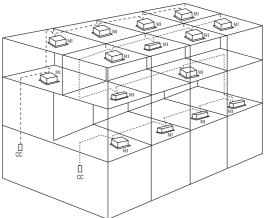
🦳 Note!

The total length of cabling between the central control and the interior units must not exceed 1200 m. If this is not the case we may find communication problems.

- The Central Control system comprises the Central Control, Interface Module and Communication Cable.
- The Interface Module (IM) is integrated in each of the interior units.
- The Central Control can connect up to a maximum of 64 interior units, which make up a LAN (Local Area Network); likewise the Central Control can oversee all the devices included in the LAN.
- We can also send an order from the Central Control to each air-conditioner or device of the networkor LAN, and establish random operation states for each air-conditioner.
- The Central Control can oversee and adjust the states, parameters and ON/OFF of one or all of the interior units of the network or LAN.



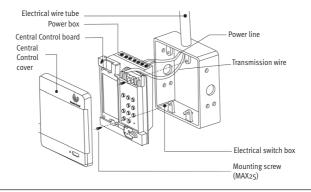
The Central Control programming signal can reach up to around 1200 m, thus resolving the different control requirements for customers.



6.2.1.5.1- INSTALLATION OF THE CENTRAL CONTROL

Installation into the wall

- The diameter of Central Control wire must be suitable for its length.
- Electrical wiring tube must be suitable for the wires.
- Turn a screwdriver at the concave on bottom panel of the Central Control to remove the Cover.



Note!

Never turn screws too tightly, or else the cover would be dented, or the Liquid Crystal breaks.



Note!

Do not cut wires when installing Central Control cover.



6.2.1.5- OPERATING INSTRUCTIONS

6.2.1.5.1- GENERAL SAFETY CONSIDERATIONS DURING USE



Danger of injury and physical damage!

- Do not let children play with the air conditioning unit.
 The unit is not designed for use by children
- Do not connect the equipment whilst using insecticides or pesticides. These could settle in the unit and harm the health of persons with allergies to specific chemical substances.
- Avoid prolonged exposure to cooled air or extreme temperatures in the room. This could be a health hazard.
- Do not insert your fingers or other objects in the air inlets and outlets, or between the unit slats whilst the unit is operating. The high speed of the fan can cause injuries.



Danger of injury and physical damage! Danger of fire and explosion.

- Do not place any heat source with flame in the equipment airflow. Do not use sprays or other flammable gases near the air equipment. This could cause a fire.
- In the event that any irregularity is detected (such as a burning smell), unplug the unit from the mains immediately and contact the distributor in order to proceed properly. If you continue to use the unit under these irregular conditions, it could be damaged and cause short circuiting or fire.
- Phone a specialist technician and ensure that preventive measures are implemented to avoid refrigerant gas leaks. Leaking refrigerant of a certain density can cause oxygen deficiency.



Danger!

Danger of electric shock.

Do not handle the equipment with wet or moist hands.



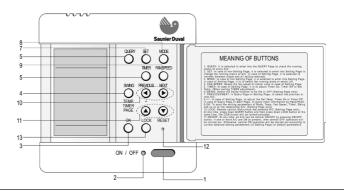
Warning!

Danger of breakdowns or malfunction.

Do not place any object on the outdoor unit.



6.2.1.5.2- IDENTIFICATION OF FUNCTIONS





Warning!

Danger of environmental contamination by not disposing of the batteries properly.

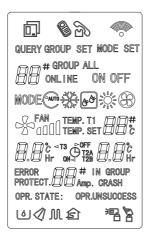
When replacing the remote controller batteries, leave the old batteries in suitable containers.

Never throw away in the rubbish.

6.2.1.5.2.1- DESCRIPTION OF THE BUTTONS

1	ON/OFF button	On/Off.
1	ON/OFF Button	OII/OII.
2		This comes on if the unit is operative.
	(next to the ON/OFF button)	
3	OK button	Confirm the operation.
4	SWING button	Enables or disables the swing function.
5	5 TIMER button This initiates the automatic connection or disconnection sequence by timer.	
6	QUERY button	This checks the different programming states of the devices.
7	SET button	This takes us to the screen to set the operation. Confirm the timer and clock settings.
8	MODE button	To choose and indicate the operation mode.
9	FAN SPEED button	This adjusts the speed at which the device is set.
10	PREVIOUS/NEXT button	In Query or Set mode. Transfer between the previous and next unit.
11	SET DATA button PAGES	To move between the different programming pages.
12	RESET button	This resets the current unit to the defect setting.
13	LOCK button	Locks or unlocks the current A/C status. If it is locked, we cannot use any mode function or On/Off in the unit until it is unlocked.

6.2.1.5.2.2- DISPLAY INDICATIONS



6.2.1.5.2.3- DESCRIPTION OF THE INDICATORS

- The common data of the screen will be displayed on the screen pages.
- The icon indicates that CC is in communication with the interior unit.
- The icon indicates that CC is in communication with the telephone remote-control module.
- If CC is in normal communication with IM (Interface Module) then this will be shown in the dynamic circulation, otherwise none will be shown.
- The icon indicates that CC is in closed/locked status or that the buttons are locked.

 ON means that the buttons are locked, or that CC and the buttons are locked, whilst a flash every 0.5 seconds indicates that the CC is locked.
- When setting the page layout, if the selected air-conditioner is in remote-control locked status (if only one air-conditioner is in remote-control locked state when several are operative, this indicates that it is in a locked state), the icon will remain on constantly.

- If it is in locked mode, the icon will come on in 0.5 Hz. If the remote control and the Mode are locked, the icon will remain on constantly.
- The TEMP icon is applicable to the following: Set Temp Ts (17-30 °C). This sets the temperature values chosen.
- Temp. T1. Temperature of pipe in either operation. Temp. T2A. Temperature of intermediate pipe between the evaporator and the condenser. Temp. T2B. Temperature of pipe in condensation. Temp. T3. The permissible data range is from o°C to 99°C. If the data are over 99°C, 99°C will be displayed on screen. If the data are below o°C, o°C will be displayed on screen. If there are no efficient data, "." will be displayed on screen and the icon °C will come on.
- The **CURRENT** icon is applicable to the compressor current. The permissible range is oA-99A. If there are no efficient data, "-" will be displayed on screen and the Amp icon will come on.
 - The **TIMER** icon is used to show the programming is on (TIMER ON) or off (TIMER OFF). The Hr icon will come on at the same time.

The ERROR code icon is used to show the data



regarding the incorrect operation of the airconditioner or of the CC. The permissible ERROR code range is Eo-EF, in which E means ERROR, o-F indicates error code, or, if there is an ERROR in the network, oo-oF# will be displayed. If there is no ERROR, "E-" will be displayed and # will come on.

The **PROTECTION** code icon is used to show the data regarding the incorrect operation of the air-conditioner or of the CC. The permissible PROTECTION code range is PoPF, in which P means PROTECTION, o-F indicates protection code, or, if there is no PROTECTION, "P-" and # will be displayed.

The **ADDRESS** icon is used to show the data regarding the selected air-conditioner displayed on screen. The permissible range of the icon is 0-63, and # will come on at the same time.



> Note!

"X#" indicates that we are in the data of the device or air-conditioner number X. If the icon "#" is not shown on-screen we are in the data of the X devices.

The **NUMBER** icon of online conditioners and ON/OFF conditioners. This is used to show the number of air-conditioners which are online (LAN) and those which are ON/OFF at the moment. The permissible range of the icon is 0-64.

The **AUXILIARY FUNCTION** icon. This function is conditioned by the type of machine we have installed. In multiple combinations of equipment with cassettes, wall mounts and conducts, there may be functions which are available to some but unavailable to others, depending on the machine. (For example, when pressing the button, there will be functions which work in wall mounts but are not available for conducts, or functions which are available for cassettes but not for wall mounts, etc).



indicates economical operation.



indicates swing.

indicates auxiliary heater (support resistance).



indicates Fresh Air function

The **QUERY PAGE** icon: This shows the situation of a device or air-conditioner.

The query page data cover several pages, and the page is dynamic. When entering the query page, the address of the first device or air-conditioner which is online will be selected by defect and the data corresponding to the said device will be shown.

The data of other pages (corresponding to other

The data of other pages (corresponding to other devices) will be shown in circulation by pressing the buttons "+" or "-".

The data for the statuses of the different devices can be queried by pressing "Previous" or "Next" to select the address of the said devices.

The RUNNING MODE SETTING PAGE icon.

This only has one page. It shows the selected mode, the auxiliary function and the selected status of operation.

The **ON/OFF** button. Pressing the on/off button at any moment will turn all the air-conditioners which are online within the CC network on or off.



6.2.1.6- DESCRIPTION OF THE PADS

6.2.1.6.1- CENTRAL CONTROL (CC) NAVIGATION DIAGRAMS

Before operating with the Central Control (CC), secure and check the Central Control and IM (Interface Module) cabling.

At any given moment, all the online air-conditioners in the CC network can be made operational by directly pressing the ON/OFF button.

Should some or all of the air-conditioners need to go into operation (ON) following the setting of mode, parameters, etc, take the following procedure into consideration:

6.2.1.6.1.1- PROGRAMMING THE INDOOR UNIT

Prior to programming the Central Control (CC), ensure that it is in the OFF position.

- Press the SET button to start programming.
- First of all select the device to be programmed using the **PREVIOUS** or **NEXT** buttons.
- Press the **MODE** button to select the operation mode: COOLING (**), HEATING (**) and FAN ONLY ((**)).
- Press the "+" or "-" buttons to set the temperature.
- Press the FAN SPEED button to set the fan speed in a sequence of AUTO, LOW, MIDDLE and HIGH.
- Press the SWING button to select the air oscillation function.
- If yoy want, you can programme the operation time by pressing the TIMER button. Set the programme start time using the "+" or "-" buttons. Press the TIMER button again and using the "+" or "-" buttons set the programme end time.
- Press the OK button to confirm the previous programming and send it to the selected device.
- Press the NEXT button to select the next device to be programmed and repeat the above sequence.
- Repeat the entire operation with each of the devices you wish to programme.
- Press ON to start the programming.



Note!

All programmed devices must operate in the same MODE (COOLING or HEATING or FAN ONLY). It is not possible to programme the devices with different operation modes. The only option would be to leave a specific device switched off.

6.2.1.6.1.2- EXAMPLES OF PROGRAMME QUERY

- In order to query programmings, the Central Control must be on standby or on.
- Press the QUERY button to query by defect the status of the first device which is online.
- Press the **PREVIOUS/NEXT** button to guery by defect the status of the other devices or air-conditioners.
- Finally press the QUERY button to exit the guery status.



6.2.1.6.1.3- EXAMPLES OF NAVIGATION



STAND-BY status.

The diagram indicates that the eight interior units are on standby.



ON and ERROR.

The diagram indicates that of the 16 units online, 15 units are operating or beginning to operate. Interior unit number 38 is in ERROR (E3).



ON status.

The diagram indicates that in communication with the CC, of the 16 interior units online, 15 are working in cool mode and one is off. Thethermostattemperature has been set at 24°C.



QUERY status.

The diagram indicates that of the 58 interior units online, they are ON in cold mode, with a temperature set of 18°C, high fan speed T₃ a (43°C) and T₂A a (13°C). An interior unit is in PROTECTION (P₂).



MODE SET status.

The diagram indicates that interior unit number 60 in the network is in heat mode, with a set temperature or 28°C, a high fan speed, with timer on in 4.5 hours and timer off in 12 hours.

6.2.1.7- ERROR AND/OR PROTECTION MESSAGES

6.2.1.7.1- ERROR AND/OR PROTECTION CODES

ERROR Code	ERROR Description	PROTECT Code	PROTECT Description		
EF	Another incorrect operation	PF	Another protection		
EE	Water level which checks incorrect operation	PE	Reserve		
ED	Outdoor protection	PD	Reserve		
EC	Clear incorrect operation	PC	Reserve		
EB	Inverter module protection	PB	Reserve		
EA	Excess intensity of compressor current (4 times)	PA	Reserve		
E9	Incorrect operation of communication between the PCB and the CC screen	P9	Reserve		
E8	Fan motor which checks out of control P8 Excess curren		Excess current intensity of compressor		
E ₇	Incorrect operation of EEPROM P7 Power Lack/Over Volt Protection		Power Lack/Over Volt Protection		
E6	Incorrect operation of zero check P6 Discharge low pres		Discharge low pressure protection		
E5	Incorrect operation of sensor T ₃	ration of sensorT ₃ P ₅ Discharge medium pressure protect			
E4	Incorrect operation of sensor T2B	P4 Discharge pipe temperature protectio			
E3	Incorrect operation of sensor T2A	P ₃	Compressor temperature protection		
E2	Incorrect operation of sensor T1	P ₂	Condenser high temperature protection		
E1	Incorrect operation of communication	P1	Anti-cooling or frosting protection		
Eo	Phase sequence or absence of phase Po Evaporator temperature protection		Evaporator temperature protection		
03#	Incorrect operation of CC communication				
02#	Incorrect operation of CC / function module communication				
01#	Incorrect operation of CC / IM (Interface Module) communication				
00#	Incorrect operation of CC / PCB communication				

6.2.1.8.- CONFIGURATION OF THE ADDRESSES OF THE UNITS

Each indoor unit connected to the CC must have an address to identify it.

This address is configured directly on the Interface Module (IM) of the interior unit.

Each indoor unit has its own Interface Module. Each module has two circuit breakers and two potentiometers. Each potentiometer has 16 positions and two circuit breakers of 4 positions, providing a total of 64 possible addresses.





А	Address Code	
	~	00 ~ 15
	O	16 ~ 31
	O	32 ~ 47
	O	48 ~ 63

6.2.1.9- ELECTRICAL CONNECTION OF THE CENTRAL CONTROL

6.2.1.9.1- ERROR AND/OR PROTECTION CODES



Danger!

- Danger of electrical discharge. Before connecting the device to the electrical supply line, ensure that the line is not with tension.
- Danger of electrical discharge. If the connection cable is damaged, have it replaced by the manufacturer, maintenance chief or other similarly qualified person.
- Danger of electrical discharge. Ensure that the power supply line is fitted with a 2/3 pole main circuit breaker, depending on the model (single phase/three-phase), with a minimum distance of 3 mm between the contacts (Standard EN 60335-2-40).
- Fit the installation with short-circuit protection in order to prevent electrical discharges. This is a legal requirement.
- Use an electrical plug which is properly suited to the electrical power supply cable.



Danger

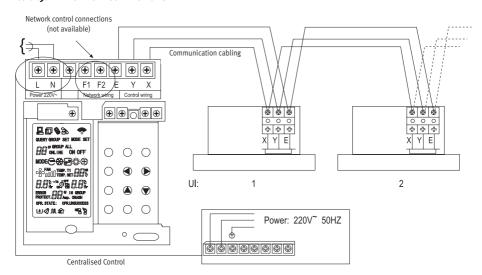
- Danger of electrical discharge. Use cables in line with applicable local, national and international regulations on electrical installations.
- Danger of electrical discharge. Use officially approved electrical connections and power supply cables.



Warning!

- Danger of incorrect operation and failures.
 Use electrical cables with sufficient capacity.
- Fulfilment of Standard EN 61000-3-11: check that the nominal power of the main current connection per phase is > 100.
- Ensure that the electrical tension supplied is between 90% and 110% of nominal tension.
- Install the device in such a manner as the electrical connection is easily accessible.
 In this manner, in the event of need, the device can be quickly unplugged.

6.2.1.9.2- ELECTRICAL CONNECTIONS





6.2.1.10- PRODUCT DECOMMISSIONING

Your product is marked with this symbol

- This means that at the end of its useful life it should not be mixed with the rest of your unclassified domestic waste and its disposal should be undertaken in accordance with the local and national regulations applicable, in a correct and environmentally-friendly manner.
- This means that the user is obliged, at the end of the useful life of the unit, to submit it to an appropriate waste management company authorised by the local authorities, for transportation to a plant where it will receive proper treatment.
- In the event that the unit is being removed to be replaced with a new similar product, the old product can be submitted to the distributor of the new unit for waste management.





6.2- CONTROLLERS

6.2.2- INDIVIDUAL CONTROL

6.2.2.1- WARNINGS

Carefully read the following information for the correct handling of the air-conditioning equipment. Next we shall list different types of safety warnings and tips:

These devices must be installed and used in accordance with all refrigerating, electrical and mechanical facility regulations and standards applicable in the place where the equipment is to be installed.

Saunier Duval, in line with its policy on continual improvements to its products, reserves the right to modify the specifications without prior notice.

Saunier Duval cannot envisage all the possible circumstances which may involve potential risk.

The equipment has been designed and manufactured for climate control through air conditioning; the application of the same in other domestic or industrial uses shall be done under the sole responsibility of the person who projects, installs or uses the same.

Prior to any intervention involving the equipment (installation, starting up, use and maintenance), the staff in charge of such operations must be fully aware of the instructions and recommendations contained in the installation manual for the device

Should anomalous phenomena be detected (e.g. smell of fumes), immediately disconnect the electrical power supply and contact the distributor, who shall proceed appropriately.

Any use of the air-conditioning equipment under these anomalous conditions may result in deterioration and cause a short-circuit or fire.

Never introduce fingers or other objects in the air inputs or outputs or in the slats whilst the air equipment is in operation, as the high speed of the ventilator may cause injury.

In the event of a leak of refrigerant gas, call out a specialist technician in order that he may take preventative measures. The leakage of refrigerant may, in certain amounts, cause loss of oxygen.

If the air-conditioning equipment is installed in a small room, ensure that the measures necessary to prevent any symptoms from lack of oxygen in the event of refrigerant leakage are taken.

If the equipment is withdrawn and later reinstalled, again check that the installation is correct. Failure to do this may generate water leaks, refrigerant leaks, short circuits and even fires.

Do not dismount the outdoor unit output. Exposition of the ventilator may be very hazardous.

We recommend regularly checking the base of the outdoor unit in order to detect possible deterioration; if a damaged base is not repaired, it may fall and cause accidents.

Never place any items on the outdoor unit.

Never handle the equipment with wet or damp hands, given the risk of electric shock.

Only use fuses suitable for each model. Never use wire or any other material to replace the fuse, as this may result in failure or fire.

Never position any source of heat with a flame in the airflow of the equipment, and do not use sprays or other inflammable gases near to the air equipment, as this may cause fire.

The installation of the air equipment close to sources of heat, combustible or corrosive materials or an air connection mouth of an adjacent building is forbidden.

Remove the power supply in order to clean the equipment, thus avoiding the risk of short circuits or injury.

Do not clean the equipment with water.

Connect the earth cable to the appropriate line



(not to the gas pipes, water, neutral or telephone line). Incorrect earthing may result in electrical hazards. Connect the condensation pipe correctly in order to ensure efficient discharge. An incorrect connection of the pipe may cause water to leak. Install differentials in order to prevent possible short-circuits.

Do not connect the equipment whilst using insecticides or pesticides. Toxic chemicals may become deposited on the air equipment and affect people who are allergic to chemical substances.

Prevent prolonged exposition to the cooling air and to extreme temperatures in the room. This may present a health hazard.

Never expose animals or plants directly to the airflow, as they may suffer damage or harm.

The staff in charge of the receipt of the equipment must carry out a visual control in order to check for any damage suffered during transit.

In order for its products to maintain optimal operation parameters, Saunier Duval recommends

regular maintenance checks, carried out always by a qualified person. This service may be covered by the official Saunier Duval TAC, which can offer a personalised contract in line with your needs.

The refrigerating installation must be done with specific refrigerating pipes (BEWARE! Never plumbing pipes).

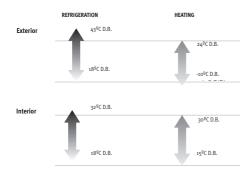


The product is marked with this symbol. This means that it should not be mixed with other unclassified domestic waste at the end of its

useful life, since its disposal must be carried out in accordance with applicable local and national regulations, respecting the environment at all times. In consequence, at the end of the useful life of the equipment, the user is obliged to contact an authorised local waste handler for transport to a suitable treatment plant. If the product is withdrawn for replacement with a new product for similar use, the withdrawn product can be handed over to the supplier of the new device, who will oversee said process.

6.2.2.2- OPERATION LIMITS

This air-conditioner has been designed for the following temperatures. Keep it in operation within these margins.



- (*) Range in the control: from 17°C to 30°C
- (*) Relative humidity: from RH40% to RH90%

6.2.2.3- RECOMMENDATIONS

6.2.2.3.1- FOR PROPER USE

Configure the appropriate interior temperature.

Both excessive heat and excessive cold can be detrimental to health. Select the temperature in which you feel most comfortable.

Avoid direct exposure to the airflow for prolonged periods of time.

Keep the doors and windows firmly closed.

You will save energy and gain comfort.

The ventilation of the premises must be in line with that required in current legislation.

For this, use a specific ventilation system.

Interior design conditions

Station	Operative temperature ^o C	Medium air speed m/s	Relative humidity %
Summer	23 to 25	0,18 to 0,24 40 to 60	
Winter	20 to 23	0,15 to 0,2040 to 60	

Correctly set the airflow direction.

Normally configure the airflow in upward direction in the refrigeration modality, and in downward direction in the heating modality in order to obtain a uniform atmospheric temperature.

Clean the air filters regularly.

Dirty filters mean reduced efficiency, whilst generating unpleasant noise and wasting energy.

Do not block or cover the air input or output openings.

6.2.2.4- INDIVIDUAL CONTROL DESCRIPTION

The Individual Control represents an alternative to the remote controller and it allows to individually control any cassette or conduct indoor unit.

6.2.2.4.1- CHARACTERISTICS

Saunier Duval thanks you for acquiring this equipment. This product has, amongst others, the following characteristics:

- Compatibility with indoor units, cassette and conducts.
- Programmable control with digital screen.
- Possibility of configuration and/or programming of the different units.

Note

The Individual Control does not work with Wall mounted split type units.

Note

The Individual Control can only be connected to one indoor unit.

Note

The total length of cabling between the Individual Control and the indoor unit to be connected must not exceed 10 m.

Note

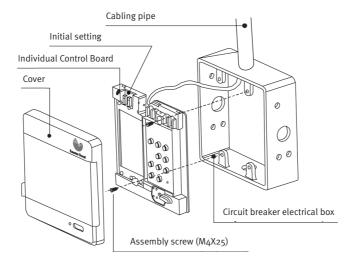
The cable used must be screened.



6.2.2.4.2- COMPONENTS



The cable should never be cut. If this is inevitable, use interconnection terminals which ensure minimum loss of signal.



6.2.2.4.3- INITIAL SETTING

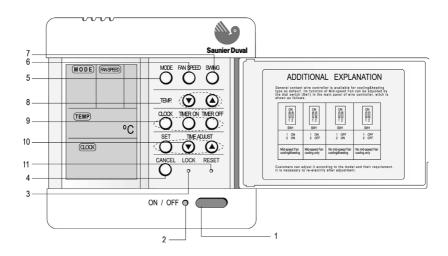
There are 4 options for setting the operation mode of the Individual Control by positioning the tabs as shown in the figure. Its function of Mid-speed Fan can be adjusted by the dial switch (Sw1) in the main panel of Individual Control.

ON 1 2 SW1	ON 1 2 SW1	ON	ON I I 2 SW1
1 ON 2 ON	1 ON 2 OFF	1 OFF 2 ON	1 OFF 2 OFF
Mid-speed Fan cooling&heating	Mid-speed Fan cooling only	No mid-speed Fan cooling&heating	No mid-speed Fan cooling only

- Customers can adjust it according to the model and their requirement.
- It is necessary to re-electrify after adjustment.



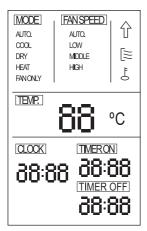
6.2.2.5.1- INDIVIDUAL CONTROL BUTTONS



1	ON/OFF button	On/off.
2	OPERATION INDICATOR (next to the ON/OFF button)	This comes on if the unit is operative.
3	LOCK button	Locks or unlocks the current programming status. If it is locked, we cannot use any mode function or On/Off in the unit until it is unlocked.
4	CANCEL button	Cancels the on and off time.
5	MODE button	To choose and indicate the operation mode.
6	FAN SPEED button	This adjusts the speed at which the device is set.
7	SWING button	Activates or desactivates the swing function.
8	TEMP button	This presets the temperature. In a range from 18 to 30 °C.
9	CLOCK button	This sets the operation time. Timer ON to set an on time. Timer OFF to set an off time.
10	TIMER SET button	This sets the operation time.
11	RESET button	This resets the current unit to the defect setting.



6.2.2.5.2- INDIVIDUAL CONTROL SCREEN FUNCTIONS



6.2.2.5.2.1- MODE FUNCTION

The MODE icon indicates the operation mode of the device. This operates in the mode selected in accordance with the sequence: AUTO, COOL, DRY, HEAT, FAN ONLY. Repeatedly pressing will change the operation mode in accordance with the sequence, AUTO, COOL, DRY, HEAT, FAN ONLY.

MODE AUTO: Automatic mode MODE COOL: Cold mode

MODE DRY: Dehumidification mode

MODE HEAT: Heat mode

FAN ONLY MODE: Fan only mode

6.2.2.5.2.2- FAN SPEED FUNCTION

The FAN SPEED icon is an indicator of the fan speed. This adjusts the speed at which the device is set.

FAN SPEED AUTO: Automatic fan speed

FAN SPEED LOW: Low speed of FAN SPEED MIDDLE: Middle fan speed FAN SPEED HIGH: High fan speed

6.2.2.5.2.3- SETTING THE CLOCK

 Before starting your air conditioning unit, it is necessary to set the clock of the Individual Control. In order to do so:

Press the CLOCK Button

Set the time with the TIME ADJUST buttons

Pressing these buttons once, the minutes of the clock go one minute backward or forward. -When keeping these buttons pressed, the minutes go thirty minutes backward or forward.

Press the SET Button to confirm the setting



6.2.2.5.2.4- TIMER

- Press the TIMER ON button and set the desired operation start time with the TIME ADJUST buttons.
- Pressing the TIME ADJUST buttons once, the timer goes ten minutes backward or forward.
- When keeping the TIME ADJUST buttons pressed, the timer goes thirty minutes backward or forward alternatively.
- Press the TIMER OFF button and proceed the same way to set the desired finish time.
 - Press the SET button to confirm the setting.

6.2.2.5.2.5- ICONS ON THE SCREEN

- The icon $\uparrow \uparrow$ indicates that the signal which sets the programming is sent.
- The icon [\equiv indicates that the device is in operation. If this goes off, it indicates that the device is off.
- The icon \int indicates that the device is locked.

6.2.2.6- INDIVIDUAL CONTROL INSTALLATION

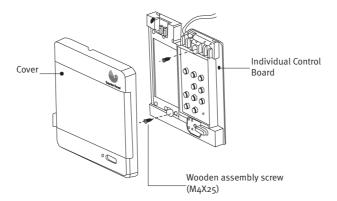
6.2.2.6.1- WALL MOUNTED INSTALLATION

The diameter of the Individual Control cable must be suitable for its length.

The cabling tube must similarly be suitable for the cables.

Remove a screw located in the lower section of the Individual Control panel to remove the cover.

The unit is fixed screwed to the wall.





Do not apply too much force on the screw, as this may dent the cover or break the liquid crystal screen.

Never cut the cables whilst installing the Individual Protection cover.



6.2.2.7- CONNECTION OF THE INDIVIDUAL CONTROL TO THE INDOOR UNIT

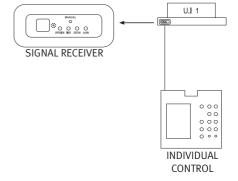
The Individual Control is connected to the signal receiver of the Indoor Unit.

HAZARD!

- Danger of electrical discharge. Before connecting the device to the electrical supply line, ensure that the line is not with tension.
- Danger of electrical discharge. If the connection cable is damaged, have it replaced by the manufacturer, maintenance chief or other similarly qualified person.
- Danger of electrical discharge. Ensure that the power supply line is fitted with a 2/3 pole main circuit breaker, depending on the model (single phase/threephase), with a minimum distance of 3 mm between the contacts (Standard EN 60335-2-40).
- Fit the installation with short-circuit protection in order to prevent electrical discharges. This is a legal requirement.



- Use an electrical plug which is properly suited to the electrical power supply cable.
- Use cables in line with applicable local, national and international regulations on electrical installations.
- Use officially approved electrical connections and power supply cables.





note

The Individual Control receives its power supply directly from the Indoor Unit.

6.2- CONTROLLERS

6.2.3- REMOTE CONTROL

6.2.3.1- WARNINGS

Carefully read the following information in order to properly handle the air conditioner. Several types of safety warnings and advice are listed helow:

These units should be installed and used in accordance with the Regulations and Standards for refrigerator, electrical and mechanical equipment prevailing in relation to the location of such installations.

As part of its policy for ongoing improvements of its products, Saunier Duval reserves the right to modify these specifications without prior notice.

Saunier Duval cannot foresee all the possible circumstances that could pose a potential risk.

These units have been designed and manufactured for the purposes of acclimatisation by means of air conditioning; the use thereof for other domestic or industrial purposes shall be the exclusive responsibility of the persons projecting, installing or using them in that way.

Prior to the performing any work on the unit, its installation, commissioning, use or maintenance, the personnel in charge of these operations must be familiar with all the instructions and recommendations contained in the unit's installation manual.

In the event that any irregularity is detected (e.g. smell of smoke), unplug the unit from the power supply immediately and contact the distributor in order to proceed appropriately.

If the air conditioner continues to be used in these irregular conditions, it could be damaged and cause a short circuit or a fire.

Do not insert fingers or other objects in the air inlets and outlets or in the slats whilst the air conditioner is in operation since the high speed of the fan could cause injury.

Call the technical specialist in order to take the appropriate preventative measures in the event

of a refrigerant gas leak. Refrigerant leakages in certain quantities can cause loss of oxygen. If the air conditioner is installed in a small room, ensure that the necessary measures are taken to prevent any symptoms of lack of oxygen in the event of a refrigerant leak.

In the event that the air conditioner is removed and subsequently reinstalled, its proper installation must be adequately verified. Otherwise, water or refrigerant leakage could occur, as well as short-circuiting or even fire.

Do not dismantle the outdoor unit's air vent. Exposing the fan is very dangerous.

It is convenient to regularly check the base of the outdoor unit to detect possible wear and tear. If a damaged base is not repaired, it could come away and cause an accident.

Do not place any items on top of the outdoor unit.

Do not handle the unit with wet or damp hands as this would cause a risk of electrocution.

Only use the right fuses for each model. Do not use wire or any other material to substitute the fuse. This could cause faults or fire.

Do not place any heat source with a flame in the airflow of the unit. Do not use sprays or other inflammable gases close to the air conditioner since this could cause a fire.

Air conditioner must not be installed close to a heat source, flammable or corrosive materials or near an air vent of a neighbouring building.

Disconnect the power source when cleaning the unit. This will avoid the risk of short-circuiting or injury.

Do not use water to clean the unit.

Connect the earth wire to the right line (never to the gas pipes, water pipes, neutral line or telephone



line). Direct earthing can cause electrical risk.

Connect the condensed water pipe correctly to ensure efficient drainage. Incorrectly connecting the pipe could cause a water leakage.

all differentials in order to prevent short-circuiting.

Do not connect the equipment whilst insecticides or pesticides are in use. Toxic chemicals could be deposited in the air conditioner and affect persons with allergies to the chemical substances.

Avoid prolonged exposure to refrigerated air and to an extreme temperature in a room. This can be a health hazard.

Do not expose animals or plants directly to the airflow as this could cause damage or injury.

The personnel in charge of receiving the unit should check for any damage to the unit during transport.

So that its products sustain optimum operating parameters, Saunier Duval recommends that units undergo regular maintenance reviews, always performed by qualified staff. This service can be covered by Saunier Duval's official Customer

Services Department which, based on your specific needs, will offer you a customised contract.

Installation of refrigeration material should be done using specific pipes for refrigeration (Warning! Never plumbing materials).

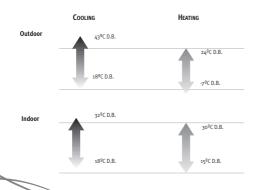


Your product is marked with this symbol. This means that at the end of its useful life it should not be mixed with the rest of your unclassified domestic waste and its disposal

should be undertaken in accordance with the local and national regulations applicable, in a correct and environmentally-friendly manner. This means that the user is obliged, at the end of the useful life of the unit, to submit it to an appropriate waste management company authorised by the local authorities, for transportation to a plant where it will receive proper treatment. In the event that the unit is being removed to be replaced with a new similar product, the old product can be submitted to the distributor of the new unit for waste management.

6.2.3.2- OPERATING LIMITATIONS

This air conditioner has been designed for the following temperatures. Operate it within these parameters.



(*) Control range: from 17°C to 30°C



6.2.3.3- RECOMMENDATIONS

6.2.3.3.1- FOR PROPER USE

Configure the indoor temperature properly.

Neither excessive heat nor excessive cold are good for the health. Select the temperature in which you feel most comfortable.

Do not expose yourself to the direct airflow for prolonged periods of time.

Keep all doors and windows firmly shut.

This will save electricity and improve comfort.

Ventilation should comply with prevailing regulations.

To ensure this use a specific ventilation system.

Indoor design conditions

Season	Operating temperature ^o C	Average air speed m/s	Relative humidity %
Summer	23 to 25	0.18 to 0.24	40 to 60
Winter	20 to 23	0.15 to 0.20	40 to 60

Adjust the airflow correctly.

Set the airflow directed upwards in cooling mode and downwards in heating mode in order to obtain a regular room temperature.

Clean the air filters regularly.

Dirty filters decrease the air conditioner's efficiency, causes irritating noises and wastes electricity.

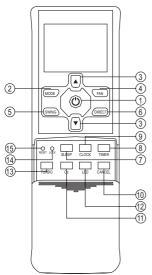
Do not block or cover the air vents.

6.2.3.4- CHARACTERISTICS

- Saunier Duval thanks you for purchasing this unit. This product contains, amongst others, the following characteristics:
- Low noise emission from both the indoor and outdoor units.
- Easy access to inside and electronics.
- Programmable remote control with digital screen.
- Modulating control of condensation and evaporation of the fan in the outdoor unit.
- Scroll compressor.
- 90^o directionable air inlets and outlets.
- Air inlet in the outdoor units.
- Dismountable switchboard in outdoor units.



6.2.3.5- REMOTE CONTROL

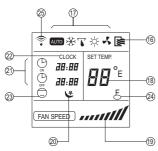


When batteries are removed from the remote controls they should be deposited for proper recycling.

_	ON/OFF button	This button is used to turn the unit on or
1	ON/OFF button (for switching on or off)	shut it down
2	MODE button (MODE)	Select the operating mode according to the frequency: AUTO - COOL - DRY - HEAT - FAN
3	Buttons ▲ or ▼	Pressing ▲ puts up the temperature and is also used to adjust the timer setting. Pressing ▼ puts down the temperature and is also used to adjust the timer setting.
4	FAN button (FAN)	The unit runs at the speed selected. Press this sequence: AUTO - LOW - MED - HIGH (In the AUTO and DRY modes, speed is automatic)
5	SWING button	The airflow swings from up to down automatically. By pressing fan again the swinging stops.
6	DIRECT button	Pressing here changes the swing of the vertical fan. Each keystroke changes the angle by 6°C. By pressing this button the DISPLAY is cleared of all symbols.
7	SLEEP button	Activates or deactivates the SLEEP function. (Power saving), adjusts the temperature to body temperature whilst sleeping. Press this button again to cancel this function. This function is also cancelled if any other button is pressed whilst in operation. (This function is not available when in FAN mode)
8	TIMER ON/OFF button (24 h)	Starts up the automatic timer-controlled on/off sequence. Press TIMER and use buttons ▲ and ▼ to set the timer connection and disconnection time. Each keystroke increases and decreases by 10 minutes. Ensure that the remote control clock is set to the right time. Press the CANCEL button to disable this function.

9 CANCEL button	Cancels programming.	
10 CLOCK button	Increases or reduces the clock's current programming. Pressing ▲ and ▼ increases and decreases the hours.	
11 O2 button	Activates the oxygen generator mechanism.	
12 LED button	Erases the information from the digital Display.	
13 TURBO button	Increases air conditioning speed, achieving fast heating - refrigeration.	
14 LOCK button	Blocks the buttons and the LCD display.	
15 RESET button	Resets the remote control and cancels all programming.	

DISPLAY



16 ON/OFF switch	If the display shows that the unit is on.	
17 MODE light	Displays the mode in which the unit is operating. (AUTO, COOL, DRY, HEAT, FAN)	
18 TEMP indicator	Displays the temperature setting. (From 17 ^o C to 30 ^o C)	
19 FAN SPEED light	Displays the speed at which the unit is set.	
20 SLEEP light	The function displayed on screen is activated. Not available in DRY or FAN modes.	
21 TIMER ON/OFF light	The function displayed on screen is activated.	
22 CLOCK light	The function displayed on screen is activated.	
23 TURBO light	The function displayed on screen is activated.	
24 LOCK light	The function displayed on screen is activated.	
25 TRANSMISSION light	Indicates that the remote control signal is being transmitted to the unit.	

6.2.3.6- MAINTENANCE

Before proceeding to clean the unit, ensure that the entire unit and the magnetothermal switch are unplugged.

6.2.3.6.1- CLEANING THE AIR FILTERS

- The air filter eliminates the dust absorbed from the room into the indoor unit. If the filter becomes obstructed, the air conditioner's efficiency will be reduced, the indoor unit's battery could freeze up and the compressor could be damaged. It is recommended that the air filter be cleaned regularly to prevent this from happening. Remove the air filters and use a vacuum cleaner to remove any dust or dirt that may be in the filters, or clean
- them with cold water.
 - After cleaning, ensure that the filters are dried completely before putting them back into the unit.
- Do not attach perfume or anti-odour systems, etc. to the filters or the indoor air reflux as this could damage
- or soil the evaporator battery. If necessary, all these systems at the unit's exit point and only ensure they only run when the fan is on.

6.2.3.6.2- CLEANING THE INDOOR UNIT

Wipe the outer part of the unit with a dry cloth. Regularly remove dust from the inlet surface. Do not clean any of the electrical parts using water. Do not use petrol, solvents or polishes when cleaning.

6.2.3.6.3- CLEANING THE OUTDOOR UNIT

Wipe the outer part of the unit with a dry cloth. Regularly remove dust from the inlet surface. Do not clean any of the electrical parts using water. Check and clean the condenser battery regularly with a soft brush if the unit is located in a dusty atmosphere (Remember that this should always be done with the unit switched OFF).

6.2.3.6.4- GENERAL CARE INSTRUCTIONS

- If you are not intending to use the unit for a few days: Put the fan into operation for three or four hours in order to dry the inside of the unit; stop the unit and disconnect the magnetothermal switch; clean the air filters; and remove the batteries from the remote control.
- Before turning the unit back on, check the following: that the air filters are installed, that the air inlet and outlet are not blocked up, that the remote control is fitted with batteries and that the differential switch is connected.
- Occasionally check the base of the outdoor unit. If the base is damaged or deteriorated, the unit could fall down and cause physical or material damage.
- We advise you to contact a reliable air conditioner specialist or the Saunier Duval Official Technical Services to contract a preventative maintenance service. This will help to prolong the life of your air conditioner and improve its performance.



6.2.3.7- TROUBLESHOOTING

We set forth below a series of problems and their possible causes. If the solutions shown do not solve your problem, contact your air conditioner specialist or call your nearest Saunier Duval Official Technical Service centre.

SYMPTOMS	POSSIBLE CAUSES	POSSIBLE SOLUTION
The system is not working at all (The fan won't start up)	Cut off the power supply. Cut off from the circuit breaker or fuse Very low line pressure. The selector is set to "o" (off). The thermostat is set too high (cooling) or too low (heating). The fuse may have blown. The batteries in the remote control may be wasted. The operating time does not coincide with the timer setting.	Restore the power supply. Consult after-sales services Consult your electrician Set the selector "I" (on) Turn the temperature up or down. Replace the fuse. Replace the batteries. Wait or cancel the timer settings.
Insufficient cooling or heating	 Dirty or obstructed air filter. Heat source nearby or too many people in the room. Doors and windows open. Obstacle in front of the air inlet or outlet. The thermostat is set too high (cooling) or too low (heating). The cold water or hot water generator in the unit is malfunctioning or not functioning at all. The air inlet or outlet on the indoor unit is obstructed. The room temperature may not have reached the specified level as yet. 	Clean the air filter. If possible, remove the heat source. Close them to prevent air entering from outside. Remove the obstacle to allow the air to circulate properly. Turn the temperature up or down. Check the generator's functioning (consult the after-sales services). Remove the objects causing the obstruction. Wait a few moments.
Excessive or inexistent cooling or heating (for units that operate in cooling mode)	 The operating mode (Hot or Cold) of the thermostat is not set). The cold water or hot water generator in the unit is malfunctioning. 	Check the operating mode selected. Check the generator's functioning (consult the after-sales services).



SYMPTOMS	POSSIBLE CAUSES	POSSIBLE SOLUTION
Excessive or inexistent cooling or heating (for units that operate in cooling mode)	 The air inlet or outlet on the indoor or outdoor unit is obstructed. The three-minute compressor is activated for protection. When running in DRY mode there is no air flow. When running in HEAT mode there is no air flow. 	Remove the objects causing the obstruction. Wait and it will operate again. At times, when in DRY mode, the airflow stops to avoid excessive cooling. In HEAT mode the air does not flow until it is hot enough, thereby avoiding a jet of cold air. For the same reason, the air stream may not be variable.

7 NOTES



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